Pəskehtəkʷok
Joining of the Branches

Penobscot Indian Nation ~ Department of Natural Resources

Spring 2004 ~ Issue 1

Phone Extensions	
Air Technician	*7340*
David Almenas	*7339*
John Banks	*7330*
Rhonda Daigle	*7326*
Clem Fay	*7362*
Yvonne "Cookie" Francis	*7331*
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Jan Paul	*7382*
Angie Reed	*7360*
Russ Roy	*7339*
Dennis Stevens	*7337*
Binke Wang	*7341*
Water Quality Trainees	*7363*

PLEASE SEE REGULATIONS FOR WHERE OPEN-WATER FISHING SEASON HAS BEGUN.

ALSO REVIEW THE NATION'S FISH CONSUMPTION ADVISORY INCLUDED IN THIS PUBLICATION.

Spring is here … and summer is just around the corner!

This means that many of the Water Resources staff are getting ready for field work. Jan Paul, Jason Mitchell and Bill Thompson are thinking about whether anything needs to change in their process of taking water samples and measurements out on the river and tributaries. Rhonda Daigle is reviewing and updating laboratory analysis procedures and getting the equipment calibrated. Angie Reed, the new Water Resources Planner, is working with everyone in the program to learn about what they do in order to write a Quality Assurance Project Plan that documents everything. And their fearless leader, Dan Kusnierz, is helping with all of this and more, including reviewing the Old Town landfill proposal.

Over the years the Nation's water quality monitoring efforts have grown to include sampling over 80 sites on both the main stem of the Penobscot River and 20 rivers and streams who flow into the Penobscot (tributaries). We also sample 17 sites on 9 different lakes. We take 10 measurements of the health of the rivers and streams on a weekly basis and 14 measurements of lake health once every month.

We would love an opportunity to show you the sampling sites, any of the measurements or analyses we do, answer any of your questions, or help you get information that you need. Please stop by or give us a call. Schedule a time to go out in the field with us! And please see Mark Sanborn if you would be interested in working with us through the Summer Youth Program.

Jason Mitchell with two sets of Penobscot River water samples: above and below Lincoln.

Woliwon

We are VERY grateful to Gabe Paul for helping us to develop the title of this newsletter. The words symbolize how we try to work in DNR and the river that brings us all together. It is an honor to have a young member share his thoughts.

Mud season has also arrived!

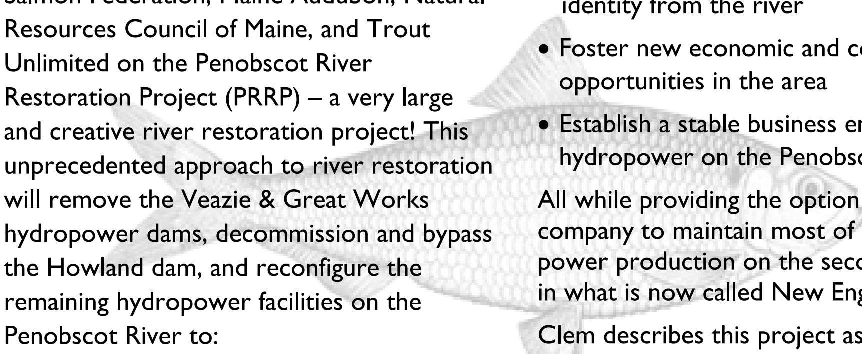
And for Russ and Dennis in the Forestry Program this means that all harvesting operations have been shut down. The mud season gates at Alder Stream, Mattamiscontis and Matagamon are either closed or will be closed in the near future. It is expected that they will be opened again prior to Memorial Day weekend.

Summer plans include harvesting operations and roadwork. Harvesting will take place in Alder Stream, Carrabassett Valley and the Mattamiscontis Lake area. Maps of the harvesting areas can be viewed online at - www.penobscotnation.org/DNR/DNR1.htm.

Mountain Brook, in the Mattamiscontis Lake area, will get a new bridge. Repairs will make the bridge closed for about a week and there will be signs posted when this is to begin. Other Roadwork will be done in the areas of Alton and Williamsburg.

Please remember that a permit is needed if you plan on burning brush or have a campfire on trust lands. These permits can be obtained from the Penobscot Nation Fire Department (207) 817-7379.

Dams, dams and more dams … being taken out!



In case you haven't heard – John Banks and Clem Fay are working for the Nation in partnership with American Rivers, Atlantic Salmon Federation, Maine Audubon, Natural Resources Council of Maine, and Trout Unlimited on the Penobscot River Restoration Project (PRRP) – a very large and creative river restoration project! This unprecedented approach to river restoration will remove the Veazie & Great Works hydropower dams, decommission and bypass the Howland dam, and reconfigure the remaining hydropower facilities on the Penobscot River to:

- Improve access to more than 500 miles of habitat for Atlantic salmon and other native sea-run fish
- Enhance the populations of these native species in the Gulf of Maine
- Restore the ecology of the Penobscot River watershed
- Improve water quality and wildlife habitat
- Restore the Penobscot Indian Nation's ability to obtain sustenance, culture and identity from the river
- Foster new economic and community opportunities in the area
- Establish a stable business environment for hydropower on the Penobscot

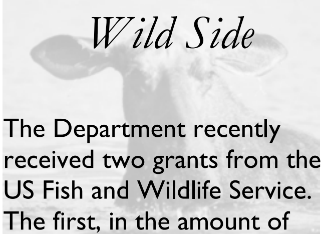
All while providing the option for the power company to maintain most of its current power production on the second largest river in what is now called New England!

Clem describes this project as "providing the highest level of potential and promise for native species and river ecosystem restoration that we could achieve in today's world of competing demands."

Check out the web site for more info!

www.penobscotriver.org

Grants on the Wild Side



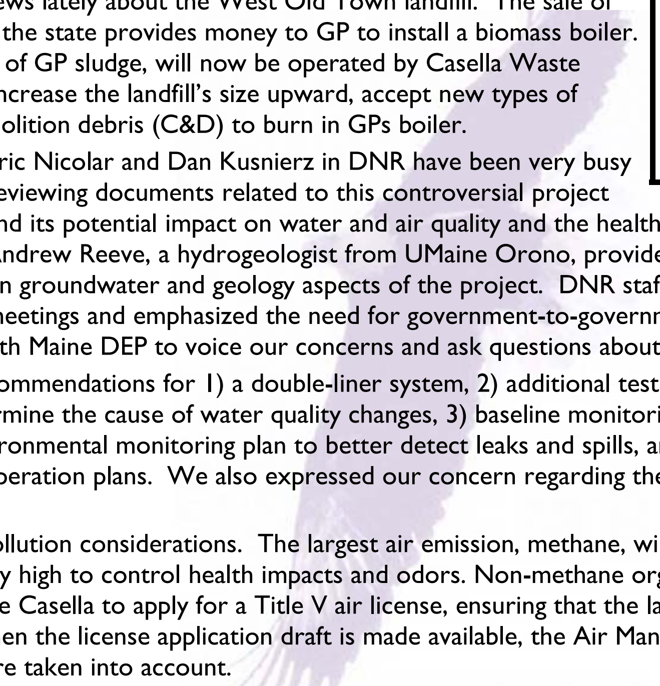
The Department recently received two grants from the US Fish and Wildlife Service. The first, in the amount of $198,625, will help to fulfill our obligations under the Conceptual Agreement for the PRRP. Specifically the money will be used in the process of reaching a final agreement with the dam owner, implementing a community education initiative, and beginning engineering studies.

The second, in the amount of $250,000, will employ a professional wildlife manager and technician to develop an applied management strategy for maintaining healthy populations of white-tailed deer and moose on tribal trust lands. This will also give the Nation the capacity to make informed decisions in its forest management planning process and in its fish and game regulations

DNR Assessment of the West Old Town Landfill

No doubt you have heard a lot in the news lately about the West Old Town landfill. The sale of the landfill from Georgia Pacific (GP) to the state provides money to GP to install a biomass boiler. The landfill, previously used for disposal of GP sludge, will now be operated by Casella Waste Services. Casella is planning to greatly increase the landfill's size upward, accept new types of waste, and supply construction and demolition debris (C&D) to burn in GPs boiler.

Please remember the role that each one of us plays in creating the need for landfills. Reduce, reuse, and recycle!



Eric Nicolar and Dan Kusnierz in DNR have been very busy reviewing documents related to this controversial project and its potential impact on water and air quality and the health of Penobscot people. Dr. Andrew Reeve, a hydrogeologist from UMaine Orono, provided us with technical assistance on groundwater and geology aspects of the project. DNR staff have attended four public meetings and emphasized the need for government-to-government consultations. On March 23 Tribal Council and DNR staff met with Maine DEP to voice our concerns and ask questions about the landfill.

Our water-related comments made recommendations for 1) a double-liner system, 2) additional testing to better characterize ground water flow and definitively determine the cause of water quality changes, 3) baseline monitoring of drinking water wells of nearby residents, 4) changes to the environmental monitoring plan to better detect leaks and spills, and 5) meaningful involvement of Penobscot DNR in monitoring and operation plans. We also expressed our concern regarding the amount of out-of-state waste that will be accepted at the landfill.

The landfill presents two different air pollution considerations. The largest air emission, methane, will be controlled using a gas flare with a burn rate which is sufficiently high to control health impacts and odors. Non-methane organic compounds have not been addressed yet. But this will require Casella to apply for a Title V air license, ensuring that the landfill complies with air emission limits and concentrations. When the license application draft is made available, the Air Manager will do a thorough review to ensure the tribe's concerns are taken into account.

The GP biomass boiler would represent an addition of a major new source of air emissions close to the Island — a major concern of the Air Program. Eric has been in consultation with GP and the Maine DEP regarding areas of concern in their Title V draft permit. Eric will be reviewing an additional "beneficial use" permit that determines how they will sort the C&D so that large amounts of toxic materials aren't burned in violation of allowable ratios. As a result of this work the plant will no longer be relying on #2 oil for fuel and the boiler will be retrofitted with better controls. Although these improvements will be made and certain air standards met, Eric will continue to assess levels of toxic emissions and communicate any concerns to the regulating agencies.

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Spring 2004 ~ Issue 2

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DNR *Assessment of the West Old Town Landfill*

~ Unfortunately it was no April Fools joke that this article didn't get printed in our first crack at a DNR newsletter. Our apologies - we have learned from that technology glitch! ~

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(Continued on next page)

NOTICE

CONTRACT WORK AVAILABLE ~ FORESTRY DEPARTMENT

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- CONTRACT ROAD WORK: We may have some road work to contract out. Members who may be interested in bidding for such work should contact Russ Roy at 817-7339.

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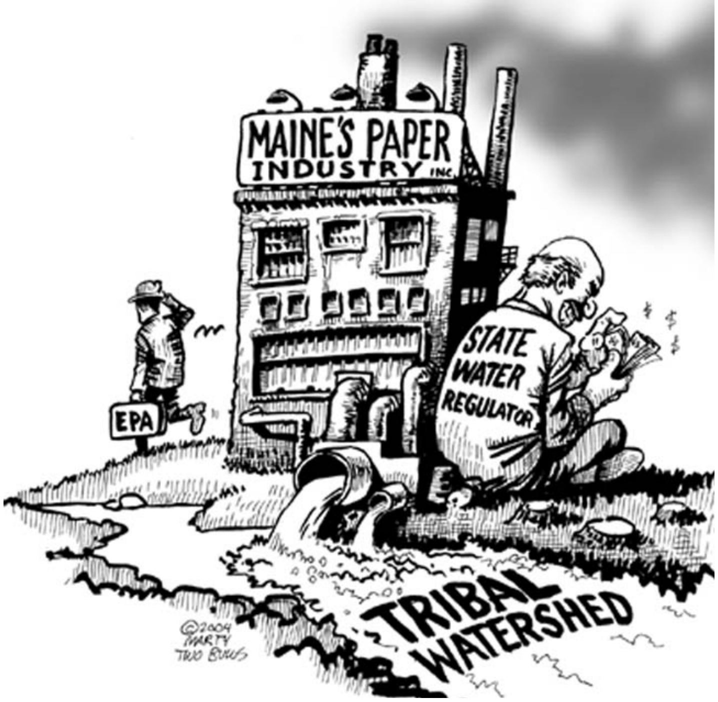


This cartoon appeared in Indian Country Today on April 9, 2004. See it online at http://IndianCountry.com/?1081521286

HELP US PROTECT WATER QUALITY

JOIN US FOR A FREE WORKSHOP

Have fun and learn about preventing non-point source pollution

BRING THE FAMILY

WHEN: **Wednesday May 12**
Workshop starts at 6 pm
Dinner catered by Panda Garden at 6:30pm

WHERE: **Olamon Building**

WHAT: **Presentations by DNR staff and FUN ACTIVITIES INCLUDING:**
- **Dunk Tank**
- **Computer games**
- **Interactive learning**

PRIZES: **First 50 people to arrive get a $20 gift certificate to a nursery for plant materials**
Drawings for larger gift certificates to a local nursery include:
***GRAND PRIZE* - $500**
***2ND PRIZE* - $300**
***3RD PRIZE* - $200**

Nahmun's River Reflections

Please look for this story by Butch Philips to be told over multiple upcoming issues of this newsletter.

Nahmun, a young Penobscot Indian man, cast a spinner bait toward the shore trying to entice a smallmouth bass. As his canoe drifted downstream, he would occasionally lift the paddle with one hand and steer the canoe to keep it parallel with the shore. An eagle made its way up the river and landed in one of the many oak trees that lined the shore of the island. Nahmun thought how nice it was to see an eagle on the river. His father had told him the eagle, that is revered by his people, at one time ceased to exist on the river due to DDT poisoning.

As he worked his lure around a "dead head" log, Nahmun thought how different his life is compared to that of his ancestors. He was fishing among the islands that are the ancestral homelands of the Penobscot Indian Nation. His people have lived here for thousands of years. He was using the canoe, the ancient mode of transportation, although, it was a modern kevlar canoe, not the birch bark canoe of his ancestors. His rod and reel were the latest in fishing technology used to casting a dozen different lures, unlike the ancestors. They used spears and nets to catch the fish that was so important to their survival.

As he fished, his mind drifted back to the days and tried to visualize how the river looked when his ancestors traveled this river. … (*to be continued*)

* * *

Indian Island School Salmon Incubation Tank

by Clem Fay, Fisheries Manager

The Indian Island School Salmon Incubation Tank Program began during the 1994-1995 school year and has continued annually since then. Co-sponsored by the U. S. Fish and Wildlife Service and the Atlantic Salmon Federation, with myself as local coordinator. The program involves the Indian Island School's 5th Grade class, under the astute guidance of teacher David Thibodeau, caring for 200-300 Penobscot Atlantic salmon eggs in a 30-gallon aquarium housed in the classroom. The program also includes several specific events and activities over the course of the school year.

After a brief program introduction in October, the 2003-2004 program kicked off with the annual field trip to Craig Brook National Fish Hatchery in Orland in early November. The usual highlight of this trip is watching the process of the biologists obtaining the eggs and milt from the large adult salmon brought to the hatchery each year from the Veazie Dam fish trap on the Penobscot River. Then, in January, we set up the incubation tank and got our "eyed" salmon eggs delivered. They live in the gravel that we put in the tank from the time they are delivered until they hatch out and absorb their yolk sac, at which point they begin to cruise around the tank looking for food.

Clem with the 2003-2004 5th grade class and USFWS on their trip to the hatchery.

During the winter and early spring months, I go into the classroom periodically to give presentations to the class on historical and current Penobscot River fish species and their life histories, and also look at the development of the young hatchling salmon under a special "microvideo" camera. Then, in May, the Water Resources Program comes in with samples of live aquatic insects and other "macro-invertebrates" collected from local waters that the students then sort through, key out, and learn about in relation to the habitat and water quality conditions from which they came. Finally, the young salmon fry, at about 1 inch long, are stocked in a local stream during a field trip when we also talk about salmon habitat needs (and get eaten alive by those hungry spring mosquitoes!).

With now 16 years of work here for the Penobscot Nation DNR, I can confidently say that this component of my job is the most enjoyable and rewarding, particularly considering the relatively small time investment required and the fact that the students seem to really enjoy the program too, especially the hatchery trip and the aquatic insects sessions. Please feel free to contact me if you want to learn more about the Salmon Tank Program or would like to visit the tank.

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Spring 2004 ~ Issue 3

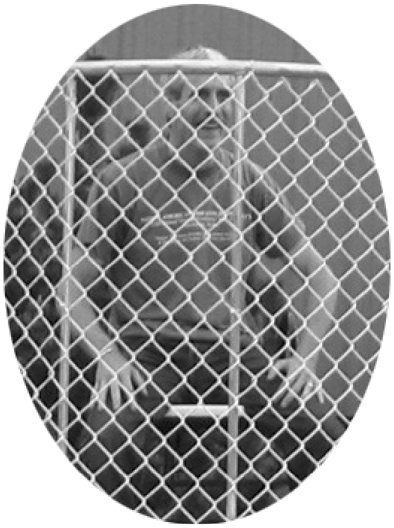
Penobscot Indian Nation
Department of Natural Resources

SPRAY, DUNK AND ROLL - DNR Workshop a big success!

What an amazing experience it was to watch over 100 children and adults have fun learning about the sources of non-point source pollution and how water collects and carries it while running downhill into rivers, streams, lakes and wetlands. The success of this workshop was possible because of the dedication and creativity of the DNR Water Resources staff. The night started with informational presentations by Jason Mitchell and Dan Kusnierz. Although they were a hard act to follow, the food by Panda Garden produced many smiling faces and full stomachs. After dinner everyone gathered outside for the activities designed to get people to learn in a FUN and INTERACTIVE way.

Sam Wright, from the Penobscot County Soil and Water Conservation District, helps Cameron Mitchell, Nicky Nicholas, Danielle Altvater, Kaleb Newell and Joseph Attean to learn what happened to non-point source pollution when it "rained" on the plastic watershed model.

The watershed model gave people a chance to see and talk about where non-point source pollution comes from while they were sprinkling various powdered substances that represented them, including cocoa and Kool-aid, onto the plastic "ground." After the pollution was present participants were invited to simulate rain with their spray bottles. Everyone got to see the pollution run off the land and collect in the river ~ making a big yucky-colored mess. After they put the vegetated buffer strips in place much less pollution was able to reach the river.



John Banks waiting to be dunked!

And what fun-loving person wouldn't want to dunk Seth Mitchell or John Banks? In this activity both the people sitting in the tank and the ball that was thrown at the target represented pollution. When

(Continued on next page)

UPDATE ON $20 GIFT CERTIFICATES

For everyone who got one of these at the workshop please come in and see Jason Mitchell to exchange it!

With the new certificate you will be able to purchase plants at Dawn 'Til Done and they will not expire.

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Seth Mitchell staying dry with the buffer strip to protect him.

(Continued from first page)

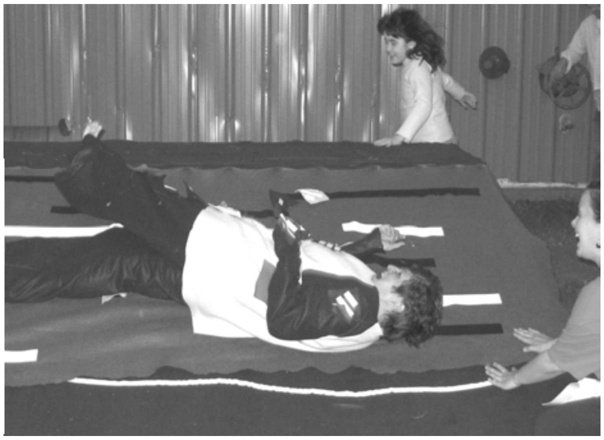
the picture of the vegetated buffer strip with a very small hole was in front of the target nobody was able to hit the target ~ showing that buffer strips help prevent pollution from entering water. But as soon as the buffer was removed our brave representatives of pollution went in! Seth's wife, Sherri, sent him swimming right away. And even though John stayed dry while a few folks tried, eventually Jeremy Lamson sent him in too!

Right: DNR staffer Angie Reed helps Naya Mitchell get her daughter Jayden Love ready to roll down the hill while Amy Cocchia waits her turn. Jayden was the water drop who stuck the most to the buffer strip.

And you should have seen how cute the children were in their blue felt water drop suits! As they rolled down the artificial hill pretending to be water their suits collected the velcro-enhanced non-point source pollution particles. The first simulated vegetated buffer we demonstrated was narrow with thin velcro and close to the bottom of the hill (near the pretend river). Most of our water drops rolled right over it without losing any pollution particles. But when we made the buffer wider and added heavy duty velcro, things changed dramatically - and got a lot funnier! Especially the very small water droplets were seriously slowed down ~ arms sticking while they were still trying to roll ~ and a greater number of their pollution particles were removed. The messages were clear and we laughed a LOT while we learned.

Left: Sarah Fields, Marcus King, and Maya Attean show off the pollution particles they collected after their talented roll down the hill.

Right: The tremendously wonderful Ruth Jewell was the only adult participant brave enough to ask to be a water droplet. She went through collection and removal of pollution with all of the kids cheering "Go Ruth" from the sidelines.



In addition to great food and fun some big prize winners got gift certificates to Sprague's Nursery:

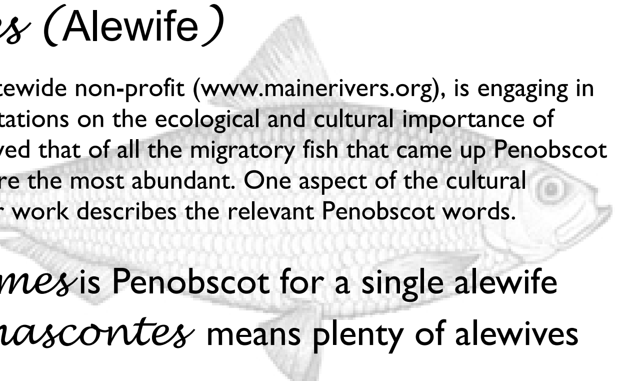
- $200 went to SC Francis
- $300 went to Tami Connolly
- $500 went to Ann Pardilla

If you would like a copy of any of the publications we gave out that night please come see Jason Mitchell. We hope to have you join us next time - for either your first or second time!

CONTRACT FORESTRY WORK STILL AVAILABLE

- CONTRACT THINNING: We plan on having a contract thinning program again this year. Interested members should contact Russ Roy at 817-7339.
- CONTRACT ROAD WORK: We may have some road work to contract out. Members who may be interested in bidding for such work should contact Russ Roy at 817-7339.

Madames (Alewife)



Maine Rivers, a statewide non-profit (www.mainerivers.org), is engaging in educational presentations on the ecological and cultural importance of alewives. It's believed that of all the migratory fish that came up Penobscot rivers, alewives were the most abundant. One aspect of the cultural information in their work describes the relevant Penobscot words.

Madames is Penobscot for a single alewife

Madamascontes means plenty of alewives

* * *

Help keep *Hemlock Woolly Adelgid* OUT of Maine

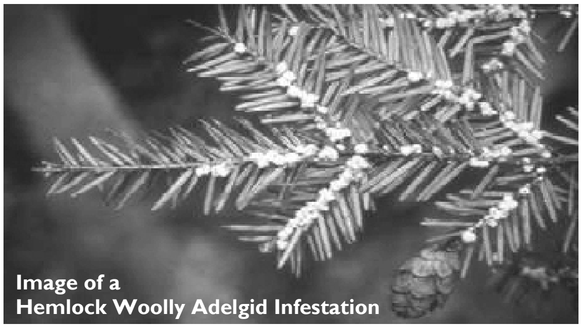


Image of a Hemlock Woolly Adelgid Infestation

The hemlock woolly adelgid (HWA) is a beetle native to Japan and China and can be a destructive pest of any forest and ornamental hemlock trees in the eastern United States. HWA causes the needles on infested branches to dry up, turn a grayish-green color, and then drop from the tree. Little, if any, new growth is produced on heavily infested branches, and most buds are also killed. Dieback of major limbs can occur within two years and typically progresses from the bottom of the tree upward. Trees may die within four years, but some survive longer with only a sparse amount of foliage at the very top of the crown.

Hemlock is abundant in Maine, and is the clearly-favored softwood for deeryards. It is used for construction lumber and pulp, and accounts for 10% of the annual forest product consumption in Maine. The species is also commonly used in landscape plantings, and that's the origin of the problem.

The majority of hemlock nursery stock sold in Maine comes from out of state, and before 2000 this stock often came from areas infested with HWA. The pest has been detected in Maine in controllable occurrences in 1999, 2000, 2001 and 2002. There currently is a quarantine against the importation of infested hemlock trees and logs into the state of Maine (www.state.me.us/doc/mfs/idmhwa.htm.)

Below are some tips, especially for people who have planted hemlocks in the last five years. Never put a bird feeder in a hemlock tree. If a tree is infested, birds can easily spread the pest to other hemlock trees. Also, when buying hemlock at a nursery or garden center, only buy certified stock. In Maine, hemlock stock can only be certified if it is free of the hemlock woolly adelgid. To identify signs of problems people should:

1. Check the underside of hemlock twigs at the base of the needles,
2. Look for one or more small, puffy white balls the size of a Q-Tip.
3. DO ***NOT*** disturb an infested tree in any way.

ALSO, please give Russ Roy a call at 817-7339 if you find any potential signs of infested hemlock trees. Although there are no problems on PIN land now, he is working hard to prevent any from happening in the future.

Nahmun's River Reflections

This story by Butch Philips is continued from the Spring Issue 2 and will continue to be told over multiple upcoming issues of this newsletter.

As Nahmun fished, his mind drifted back to the days and tried to visualize how the river looked when his ancestors traveled this river. He thought how peaceful and beautiful this river must have been. The river was clean, pure and free flowing. The woods and waters had an abundance of fish, game and medicines that provided all the material needs of the people.

Nahmun remembered what the elders had said about the sacredness of the river and about the creatures that lived there. The elders stressed the importance of respect and reverence for Mother Earth and all her creatures. He recalled the stories about Gluscabe, the cultural hero, and how he taught the people to live harmoniously with the creatures of Mother Earth and to live by the ancient practices of conservation of the bounty. Gluscabe said we must always consider the consequences of our actions today and the effects they will have on tomorrow and the next seven generations.

The people lived by the belief that if you disrupt the harmony on the Sacred circle of life, you will eventually harm mankind. As he gazed at the beauty of the river, Nahmun suddenly felt a special connection to the river and his ancestors. In his day dream, he could see the people traveling up the river by canoe to their family hunting grounds to hunt the animals and to gather the plants for medicine and to eat. He saw thousands of salmon, shad and alewives ascending the river towards their spawning streams. The People gathered at their customary areas to spear and net the fish. The fish was dried and stored to sustain them for a long time. The People were content and happy. The river was taking care of the people and all their relations.

Nahmun wondered why the river had changed so much and why the People and their traditions had changed also. (to be continued)

Photo: Martin Neptune

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Water Resources Trainees	7363

DNR Director Elected to Chair Regional Air Quality Group

The Mid-Atlantic/Northeast Visibility Union (MANE-VU) concluded its annual Board meeting on Thursday, June 10, 2004, in Red Bank, New Jersey, recommending that the group use EPA’s definition of “Natural Background” conditions, the goal of the regional haze program, and encouraging other regions to do the same. The group also decided not to exempt any sources from the control technology called for in the regional haze rule, and to strongly encourage EPA and other regions to regulate these sources consistently.

At the meeting, MANE-VU introduced its new Chair, John Banks of the Penobscot Nation, and its new Vice Chair, Kathleen McGinty, Secretary of the Pennsylvania Department of Environmental Protection.

John Banks, DNR Director

“I am honored to work with the Commissioners and Air Directors of the 12 states and 2 Tribes on the important effort of reducing haze at our parks and reservations, not only for the improved visibility, but for the thousands of lives that will be saved each year by us meeting our air quality goals” said Mr. Banks,

In response to the news that the Mid-Atlantic Northeast Regional Visibility Union (MANE-VU) had unanimously elected John Banks to be its new Chair, EPA Administrator Michael Leavitt said "It's very gratifying to see a Tribal representative elected to lead such an important multi-State and Tribal organization as MANE-VU. EPA views Tribal governments as important partners in environmental protection, and I strongly encourage their participation to address important regional and national issues like regional haze."

“MANE-VU is bringing together the best expertise in the nation to take on the pollution that clouds our view and impairs our health. Pennsylvania is pleased to contribute to this important work, and I personally am honored to work under John’s capable lead,” said Secretary McGinty.

Former Chair Christopher Recchia of Vermont said “I am very excited to transition this work to such a great team and the leadership found in both Director Banks and Secretary McGinty, and the fact that we have a Native American chair is a tribute to the region’s commitment to supporting and involving the tribes as we work to improve air quality on Tribal lands as well as in our national parks.” (Recchia was formerly Commissioner of the Vermont Department of Environmental Protection and now serves as MANE-VU’s Executive Director).

Major discussion topics of the MANE-VU meeting included continued evaluation of what pollutants cause regional haze and destroy the visibility at our parks, the health effects of the problem, and how to best address the goal of returning air quality to natural conditions. Actions included a decision on what “natural background” levels in the region are, and what reductions in emissions will be needed to achieve the goals under the regional haze program. MANE-VU members also discussed the implications of

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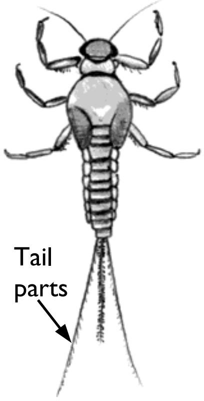
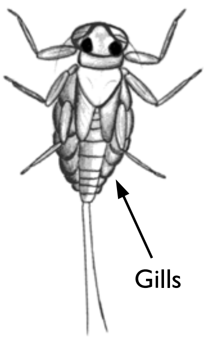
the Best Available Retrofit Technology (BART) rule in the region, which was recently released by the U.S. EPA.
MANE-VU was formed to encourage a coordinated approach to meeting the requirements of EPA's regional haze rules and reducing visibility impairment in major national parks and wilderness areas in the Northeast and Mid-Atlantic region. Members include Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, the Penobscot Indian Nation, Rhode Island, the St. Regis Mohawk Tribe, and Vermont. Also participating as non-voting members of MANE-VU are the U.S. Environmental Protection Agency, the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service. MANE-VU provides technical assessments and assistance to its members, evaluates linkages to other regional air pollution issues, provides a forum for discussion, and encourages coordinated actions. MANE-VU also facilitates coordination with other regions.

It's Critter Time!

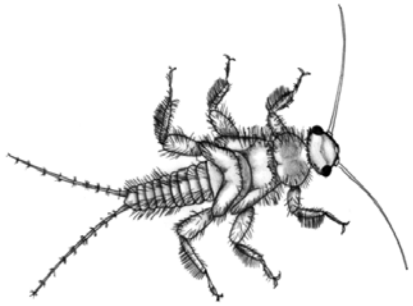
Aquatic critters that is. As part of Clem's Salmon Incubation Program with the Island School, Dan Kusnierz and Angie Reed brought in some aquatic insects for the 5th grade class. We spent the first part of the class period talking about the importance of aquatic insects as food for fish and indicators of water quality. Then the real fun began - everyone got to get their hands wet and play with real live insects! Some of the major groups of insects we looked at included mayflies, stoneflies and caddisflies.

MAYFLIES: We saw that the larval stage of these critters usually have 3 parts to their tail - but if they don't you need to look for the gills on the sides of their abdomen. Because they have gills they need clean water with lots of oxygen to exist.



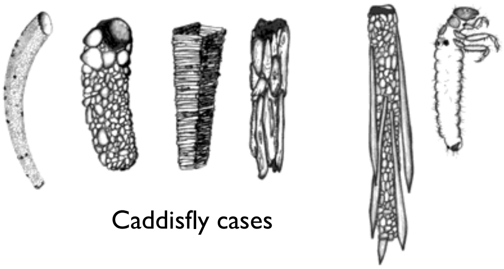


STONEFLIES: In contrast, the larval stage of stoneflies always have 2 parts to their tail and NEVER have gills on their abdomen. And if you get a really big one you might be able to see that they have two claws on the end of their legs! But just like mayflies, stoneflies breath through their gills so when they are present in large numbers you can be pretty sure that the river is healthy.

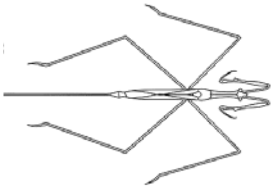


Enthusiastic students picking through samples of aquatic insects.

CADDISFLIES: These critters have the widest variety of living quarters. Some make cases to live in. And these cases are made from MANY different materials, including sand grains, sticks, grass and more! Others live freely. And still others weave nets that serve to collect food from the water flowing through it.



Caddisfly cases



Water scorpion

The biggest treat was showing the class a critter not typically seen by many people - a water scorpion. These are found in the slow water of river and streams and on the edges of lakes. They are not poisonous and are GREAT fun to watch. We look forward to more of this fun next year!

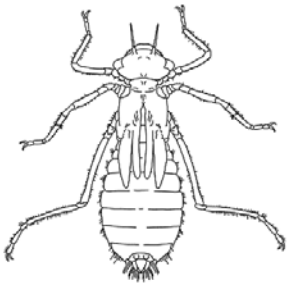
Libellula pulchella

Twelve-spotted skimmer

Photo: Blair Nikula

Policing the Area

The little wetland area between the police station and the DNR parking lot might not look like much but a Twelve-spotted skimmer, pictured above, is pretty happy to have it. About a week ago one of these dragonflies was perching on one of the àlaskol (reeds) and flying around policing the area. Dragonflies are sometimes called "mosquito hawks" because they eat lots of mosquitoes in both the larval and adult stages of their life. All dragonflies spend the larval stage of their lives, which can last between one and four years, in slow-moving water. The larvae of this and other species can be used for bait fishing or as fly patterns for nymph fishing, especially in ponds and lakes.

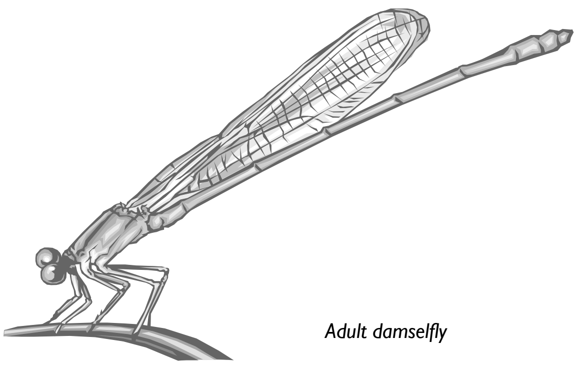


Dragonfly larvae

Another insect that is unable to fold their four elongate wings over the abdomen when at rest is the damselfly. While the adult dragonflies and damselflies look similar, the way to tell the difference between them is actually pretty simple. Dragonflies hold their wings out flat when they are resting and damselflies hold them together so that they stick up in the air.

The Maine Department of Inland Fisheries and Wildlife started a survey of the dragonflies and damselflies of Maine back in 1995. Lots of data and GREAT photos can be found on their website at

mdds.umf.maine.edu/



Adult damselfly

So as you are walking around the Island, take a moment to look for the beautiful varieties of insect life with whom we share this space.

Nahmun's River Reflections

This story by Butch Philips spans multiple issues of this newsletter.

Nahmun wondered why the river had changed so much and why the People and their traditions had changed also. Nahmun stopped fishing for a moment and lay back in the canoe, watching the tops of the trees go silently by. As he drifted slowly along with the current, he recalled a story his father told him about the changes brought to the river by the European settlers many generations ago.

His father told of a long time ago a medicine man had a vision about a big canoe with sails coming from the direction of the rising sun. Strangers with light colored skins would come to our lands and bring great change to the land and the people. At first the people treated the strangers with cautious apprehension, but later greeted them in the customary way

But more ships brought many more people to the area. Settlements sprang up surrounding the few Indian villages scattered along the river. The Europeans moved further inland and discovered a forest with vast amounts of valuable trees. As the lumber industry grew, the river was used to transport the lumber to the ocean. Dams were built to help float the logs and the river became full of logs impeding canoe travel. The dams also kept the fish from migrating from the ocean to their native spawning grounds. Once there were falls and rapids, new ponds were created by the dams. Towns and mills were built on the shores and dumped their pollutants into the river. The once precious, pristine, free flowing river that the ancestors had revered and protected for the future generations was destroyed.

The change had a drastic effect on the People and the creatures. The caribou and the beaver went away. The eagle and the osprey went away. The salmon, shad and alewives went away. The People went away from the river also. The sacred circle of life was broken. The ancestors witnessed the destruction, and they wept, but their tears couldn't flush the poisons from the river. Their protests could not stop the dams and mills or the increasing population along the river. With this change came a change to the way of life of the People and to their traditions as well. (to be continued)

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Summer 2007 ~ Issue 1b

Penobscot Indian Nation
Department of Natural Resources
www.penobscotnation.org/DNR/DNR1.htm

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Kristin Dilworth, *Big Game Biologist*	*7363*
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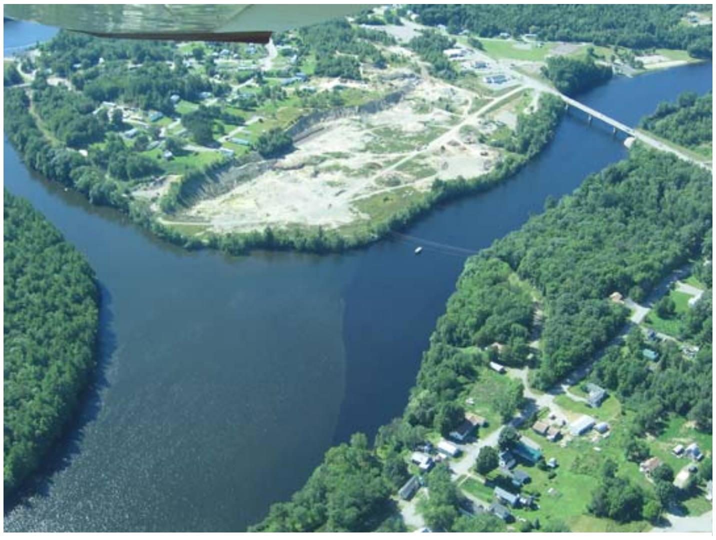
Dan Kusnierz, *Water Resources Program Manager*	*7361*
Jason Mitchell, *Water Resources Field Coordinator*	*7381*
Ed Paul, *Game Warden*	*7392*
Jan Paul, *Water Resources Field and Lab Technician*	*7382*
Angie Reed, *Water Resources Planner*	*7360*
Russ Roy, *Forest Manager*	*7339*
Jason Sockbeson, *Water Resources Trainee*	*7381*
Dennis Stevens, *Forester*	*7337*
Bill Thompson, *Air Quality Program*	*7340*
Binke Wang, *GIS Specialist*	*7341*

The bloom is back: Caution advised



The joining of East Branch (on the right) with the West Branch on August 9.

WHAT IS GOING ON!? Similar to what happened back in the summer of 2004, the Penobscot River is experiencing a "bloom" of a particular kind of cyanobacteria named *Anabaena*. Cyanobacteria are tiny organisms who float in the water and get their food (energy) from either the sun or things in the water. (See Summer 2004 Issue 3a of the DNR newsletter for more information on them.) A bloom is the commonly used word to describe times of high concentrations of these organisms in the water - sometimes forming thick layers or scum on the surface. Currently, the highest concentrations are up at Weldon Dam. However our aerial surveys and water quality monitoring show that it extends well past Indian Island. While you may not have seen the river around Indian Island turn an intense blue-green color, **it is down here**.

WHY IS THIS HAPPENING AGAIN!? Also similar to the summer of 2004, the bloom is being caused by too much phosphorus (food for cyanobacteria) being dumped (discharged) into the West Branch by Katahdin Paper in Millinocket. The increased use of phosphorus was not as extreme as in 2004 but, obviously, enough to cause another bloom - even though not as severe. Phosphorus, in the form of phosphoric acid, is being

(Continued on next page)

CAUTION ~ CAUTION

As a precaution, we recommend that you and your pets DO NOT ingest any river water at this time - especially near or in areas of large accumulations that look very blue-green in color.

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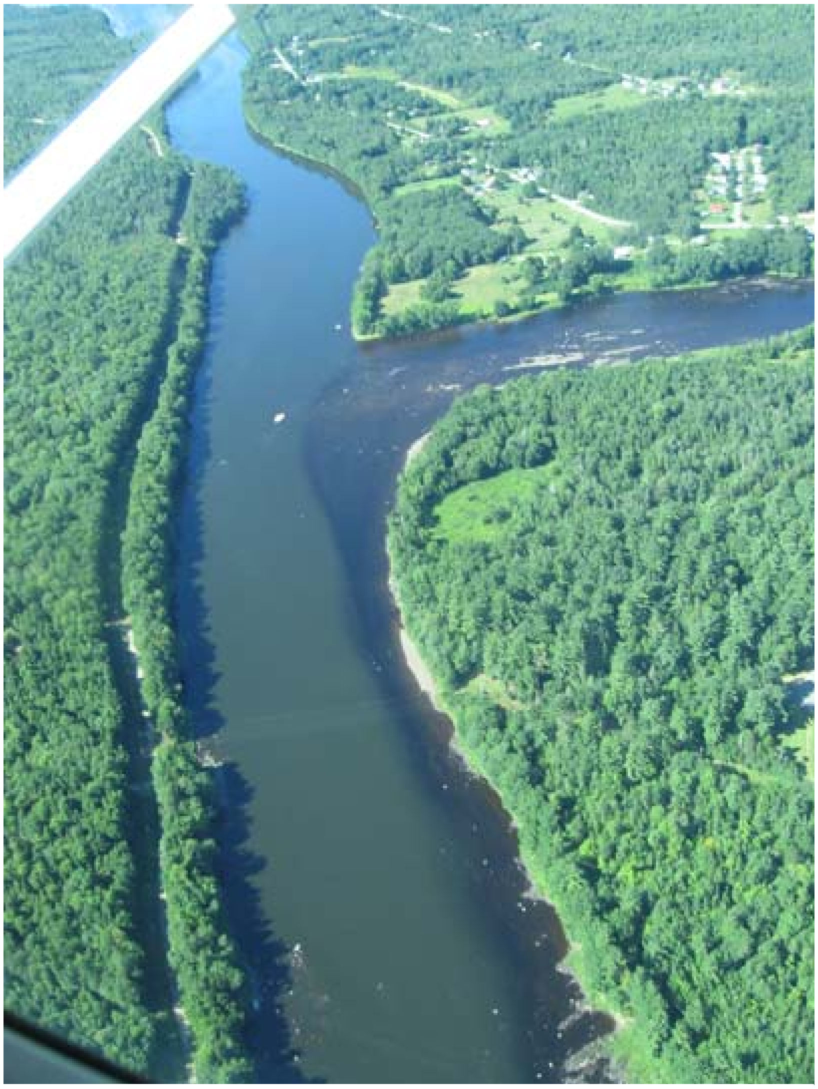
used to brighten the pulp that the mill is buying so that we can all have whiter paper products.

There have been agreements in place that all mills on the river would monitor how much phosphorus they were putting into the river. This process was aimed toward voluntary limits so that blooms could be avoided. Currently there are no regulations on how much phosphorus can be discharged into rivers.

WHAT IS BEING DONE!? Especially since the latest developments, PIN Water Resources staff are working even more closely with Maine Department of Environmental Protection (DEP) on putting legal requirements in place that would limit the discharges of phosphorus and other similar kinds of nutrients.

The presence of the bloom was found on the first day of an intensive three-day monitoring effort that combined staff from PIN, DEP, Environmental Protection Agency (EPA), paper mills and wastewater treatment plants. This monitoring was done to collect information that will help to better understand the current status of the main stem of the river. There were five teams out who were taking samples and measurements along more than 75 miles of the Penobscot twice each day at the same time - starting at 5am and ending at 5pm.

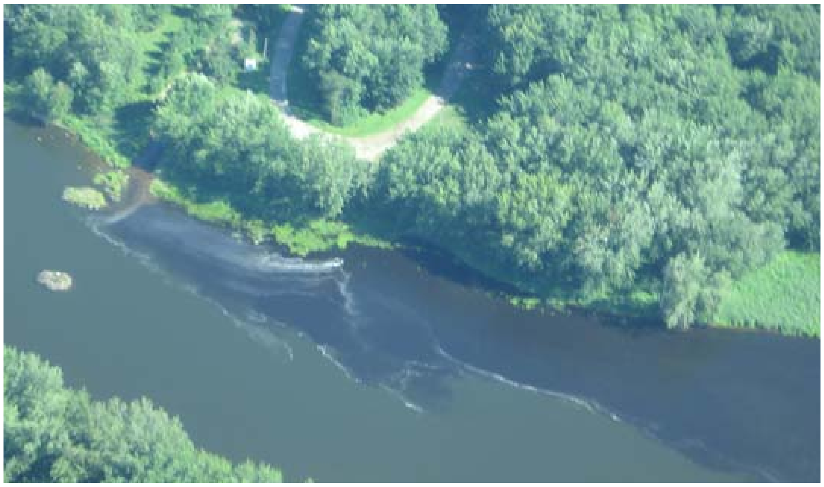
Since this intensive monitoring PIN staff have been the primary players in assessing the severity and extent of the bloom. There have been many more samples taken, aerial pictures taken and equipment put out in the river that takes measurements at regular intervals. PIN staff have also involved colleagues from the Bigelow Laboratory for Ocean Sciences (www.bigelow.org) who can help to get more and better data. Collin Roesler, with Bigelow, has generously offered staff time, equipment and analyses all free of charge.



Joining of the Mattwamkeag River (on the right) with the main stem of the Penobscot on Aug 9.

Unfortunately, Katahdin Paper has not yet reduced the amount of phosphorus they are discharging.

We will keep you posted on any changes in the situation.



Discharge from the Lincoln Paper and Tissue mill on Aug 9.

If you have any questions about this bloom please call:
Angie Reed at 817-7360 or
Dan Kusnierz at 817-7361.

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Summer 2004 ~ Issue 2

Penobscot Indian Nation

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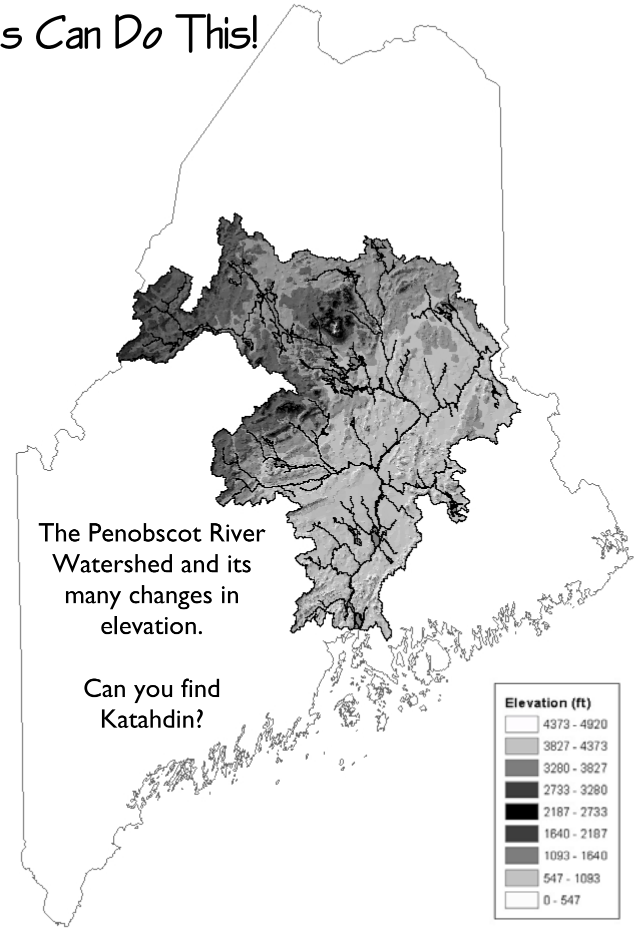
Water Resources Trainees	*7363*

Not All Tribal Programs Can Do This!

What not all Tribal programs can do is computerized mapping using a Geographic Information System (GIS). However, the DNR has the privilege of having a very well-qualified staff member, Binke Wang, to do this work. Binke is originally from a town near Xi'an, in China's province of Shaanxi and has been living in the US and Canada since 1994. Since he joined our staff in 2001 he has worked alone and with many other staff to greatly enhance our map database and produce some very useful maps.



The Penobscot River Watershed and its many changes in elevation.

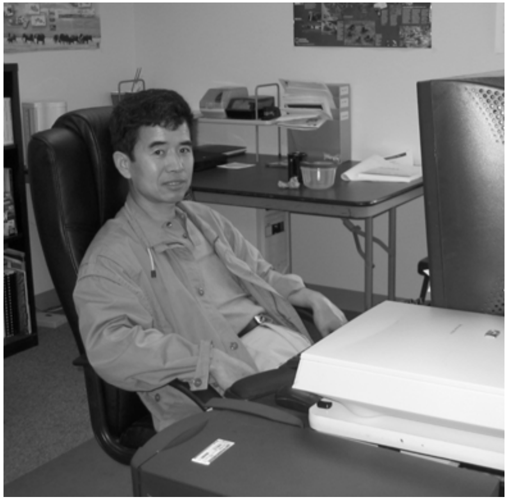
Can you find Katahdin?

The map shown here is the result of using three-dimensional elevation data to reveal the beautiful hills and valleys of the Penobscot River Watershed. Maps like this provide a very different visual perspective on the land - a watershed perspective. Our software also allows Binke to perform spatial analysis and network modeling to derive sophisticated data layers and information used for forest resources planning, management zoning, water quality monitoring and water resource modeling.

Please come into the DNR office and see the collection of Tribal Land maps that Binke has provided for community members to take home with them. The collection is hanging in containers on the wall and includes: a single map showing all tribal lands distinguishing between reservation islands and waters, fee lands and trust lands, individual maps of each parcel, and a detailed map of Indian Island. In addition to the collection of small maps you can

HAVE YOU RETURNED YOUR POND SURVEY YET?

We are pleased to have gotten over 30 responses so far - thank you!
And we are still interested in hearing from folks. So if you haven't filled out the survey that was delivered with the Community Flyer about a month ago it's not too late.
If you need another survey please stop by the DNR office.



also see the poster-size maps that were created on our large-format printer. Because we have the capability to print on 42" wide paper there are a wide range of products that we can create. So stop by - learn - get some maps! We would love to see you.

Left: Binke's usual spot - in front of his computer - always ready to help us make any map that we need.

REMINDER

Mountain Brook, in the Mattamiscontis Lake area, will be getting a new bridge this summer. Repairs will make the bridge closed for about a week and there will be signs posted when this is to begin.

American Eel ~ Species Profile

Like the Atlantic salmon that has been so highlighted in the news over recent years, the American eel (*Anguilla rostrata*) is a native, migratory fish of the Penobscot River that was very important historically to the Penobscot Indians. The Penobscot word for eel is "Naha 'mu". And, according to Frank Speck's book "Penobscot Man", the "Eel Clan" (Neptune family) is one of the oldest clans in Penobscot history. Speck also describes the unique methods that Penobscot Indian families used to gather eels for subsistence, which, among others, included preparing an extract from local plants to use as poison to stun the eels living in a stream for subsequent capture.

Unlike salmon and other "anadromous" species, which are born in freshwater, migrate to the ocean to grow into adults, and then return to the freshwater again to spawn, eels use an opposite life cycle, termed "catadromous". Eels are born in the Sargasso Sea, an area of the Atlantic Ocean near Bermuda where sargasso weed, a floating marine plant, flourishes. After the eggs hatch, the young "larvae" drift northward along the coast with the Gulf Stream currents, entering tidal areas of nearly every river and stream that drains into the ocean. After arriving in these tidal zones and at about 1 year of age, the young transform from larvae into the stage known as "glass eels". They are called this because they are nearly transparent, except for their eyes and their spinal cord. They are about 3-4 inches long at this point. Then, over a period of several weeks in the tidal zone, the glass eels become pigmented and

(Continued on next page)

DNR "Spruces" Up the Place

You may have noticed that the once barren landscape around the Sapiel Building is now beginning to come alive. We are embarking on a journey of creating a native plants demonstration area that we will continue to plant with trees, wildflowers, flowering shrubs and native grasses. Dan Kusnierz got the seed of this idea from the folks at the Natural Resources Conservation Service (NRCS) and helped it grow with grant money from the Environmental Protection Agency (EPA). A significant aspect of this project's development has and will continue to come from the help of Bonnie Newsom, Director of Cultural and Historic Preservation. Bonnie helped us find Tami Connolly to do the landscape design and will be assisting with the plaques that will identify the plants and their uses in both Penobscot and English. Where appropriate we will utilize native plants that are of traditional importance to the Penobscot Nation. It is hopeful that sufficient quantities of plants can be grown within the demonstration area to serve as a plant nursery to use for other projects.

As the landscaping evolves and matures it will also begin to serve as a way to slow down the rain that falls directly onto the ground as well as running off the roof of the building. Slowing down the runoff will allow the rain to soak into the ground and not carry with it any non-point sources of pollution that can ultimately get into the river.

At this point we have two Spruce, one Cedar, one Sugar maple and one Dogwood. In the future we will also have White birch, Cinnamon fern, Ostrich fern, Yellow root, Lily of the valley, Pussy willow, Lady fern, Joy-pye weed, Milkweed, Labrador tea, Common witchhazel, two varieties of Highbush blueberry, and Nannyberry. Come over once in a while and watch the progress.

Right: Jason Mitchell puts stakes in the ground to stabilize a cedar tree planted on the northwest corner of the building. Stabilization will keep the trees straight and help with root development.

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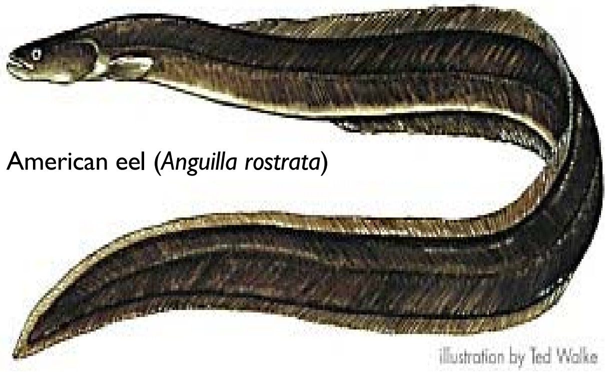
are called "elvers". Elvers then begin migrating further upstream into freshwater during their first summer, and this general "upstream trend" continues throughout their freshwater life until they are mature.



American eel (*Anguilla rostrata*)

illustration by Ted Walke

Young eels don't "decide" what sex they are going to be until about age 5. At that point, some eels become males and remain in the river itself, maturing rapidly and rarely growing larger than 20 inches in length. They are called "yellow eels". The rest become females and continue migrating up the river and into headwater lakes, where they live another 10-15 years prior to maturing. Females grow much larger, up to 5 feet in length, and change color when they mature, their sides and belly becoming silvery (thus they are often called "silver eels"). Then, in the fall, and usually in response to rainfall and increased stream flows, the mature males and females migrate to the ocean together, then out to the Sargasso Sea, where they spawn together in large groups and then die.

In addition to their importance historically to Penobscot Indians, and their commercial importance in more recent times, eels are extremely important from an ecological perspective. They represent one of many important historical connections between the ocean and coastal rivers, and are a critical species in the food web of watersheds like the Penobscot River, both in terms of what they eat, but also, what eats them (for example, eagles and striped bass!). If you wish to learn more about this unique and somewhat mysterious and elusive fish species, please contact Clem Fay of our staff, at 817-7362, or pinfish@penobscotnation.org.

Nahmun's River Reflections

This is the last episode of this story by Butch Philips.

Their protests could not stop the dams and mills or the increasing population along the river. With this change came a change to the way of life of the People and to their traditions as well.

In the past, when the People needed help, they summoned Gluscabe, their cultural hero, for help. But Gluscabe knew he was no match for powers of the towns, industries, and the State. Gluscabe went away also. The people then appealed to the Legislature to help stop this destruction to the river and to their way of life. However, their Indian voices fell on deaf ears because the Legislature believed that the river, like the people, had been conquered by the settlers. The people went away from the river. The sacred circle of life was broken.

A sudden splash broke the day dream and caused Nahmun to sit upright. The eagle had dived into the river and arose with a small pickerel. Watching the eagle fly to his perch high in the oak tree, Nahmun started casting his lure once again. The eagle had reminded him of another change that was taking place on the river. A change for the better. Nahmun's father had told him about the federal programs that initiated the clean up of the river. The Pollution Control Act of 1956; the Anadromous Fish Act of 1960, and the Clean Water Act of 1972 had provided the incentives to begin the restoration of the Penobscot and the other rivers.

With the actions and programs of the State and various user groups, the river started to cleanse itself.

Finally people were becoming aware of the serious destruction to the river. They came to understand what the Native People had been telling them for so long. "If you cause harm to Mother Earth, you will eventually cause harm to mankind." A serious effort had begun to reverse the damage to the river. The Pollution Abatement programs drastically reduced the amount of pollutants in the river. Laws were passed to regulate the use of certain chemicals and regulations passed to stop damage to the streams. The dams were improved to enhance fish passage upstream and downstream. Logs no longer jammed the river as the river drives were curtailed. In 1975, the Penobscot Nation became a federally recognized tribe and through grants became very involved in the restoration effort.

The beaver, eagle and osprey came back and the People came back to the river also. Efforts are underway to remove two dams and to improve another so the sea-run fish can once again enter reservation waters on their way to their ancient spawning areas. The young Indian man thought how happy the ancestors must be to see the river cleansing itself and to see the people once again traveling up river to hunt fish and gather plants.

Nahmun thought to himself. How can the ancestors be happy. They remember when unknown diseases killed so many of our people nearly four hundred years ago, and there are still unseen poisons in the river that are causing suffering for the People. Dioxin, mercury and cadmium are in the flesh of the fish and game that cause sickness and death to the people. Nahmun held up a two pound bass for a few moments before releasing it. He thought about the present dangers that still exist from eating the fish from these waters. There have been great strides to restore this river and we can be proud of the many accomplishments, but until we can safely eat the fish again as our ancestors did, the precious Circle of Life of this river will not be completed.

Nahmun carefully released the bass back into the river and as it swam away, he said to the fish, "Woli Woni" (Thank You). And all my Relations, "Woli Woni."

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Summer 2004 ~ Issue 3

Penobscot Indian Nation

Phone Extensions

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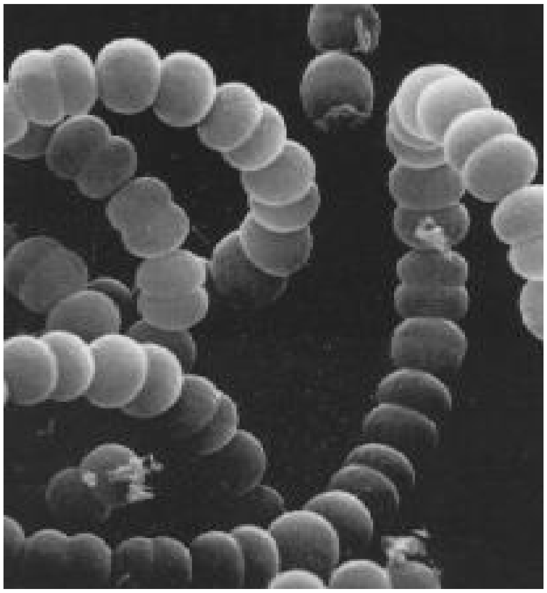
Water Resources Trainees	*7363*

What Is That Smell?

If you have noticed an earthy or musty smell coming from the river in the past few weeks here is the explanation! We are experiencing what is called a “bloom” of a particular kind of cyanobacteria named *Anabaena*. A bloom is the commonly used word to describe times of high concentrations of these organisms in the water—sometimes forming thick layers or scum on the surface. The highest concentrations are up in Dolby Pond in Millinocket and at Weldon Dam. However our aerial surveys and water quality monitoring show that it extends well past Indian Island. While you may not have seen the river around Indian Island turn an intense blue-green color, **it is down here**.

The water resources staff are working hard on sampling and analyzing many aspects of this bloom! Some species of cyanobacteria produce toxins - but preliminary results have shown that the one we have in the river is not one of them. However, we are continuing to collect samples and work with the Wright State University laboratory to get a confirmed identification of each species present and determine whether there are any toxins in the water. We should have more results this week. For more information about cyanobacteria, read on!



Greatly magnified photo of Anabaena species from the web site of Dr. Wayne Carmichael’s laboratory www.wright.edu/biology/faculty/carmichael/labhome/research-r.htm

CYANOBACTERIA DEFINITION

But what are cyanobacteria you ask? Well, cyanobacteria are members of a group known as eubacteria or true bacteria. They also have the distinction of being the oldest known fossils—

(Continued on next page

CAUTION ~ CAUTION

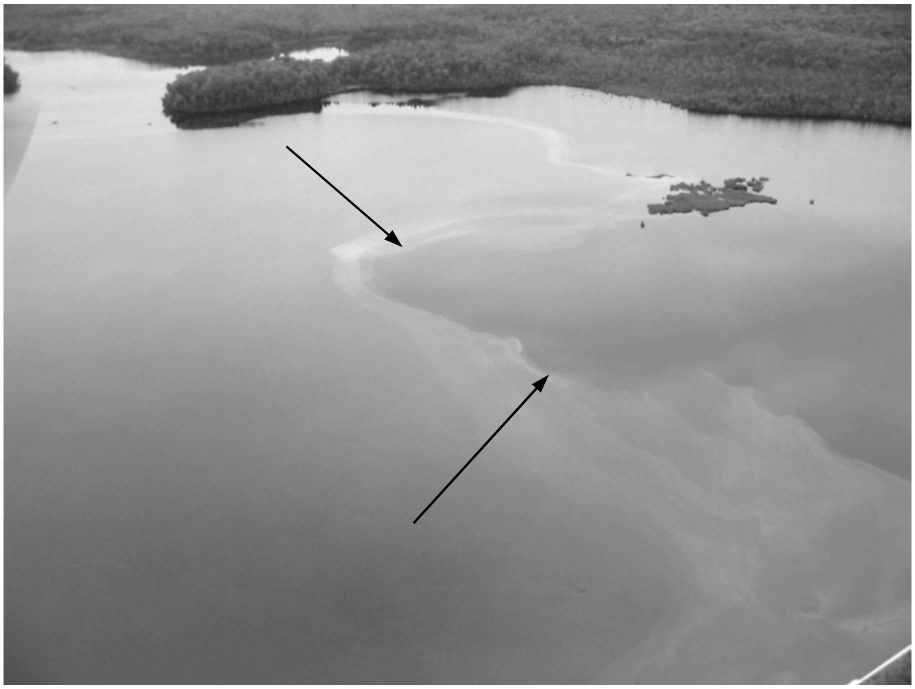
As a precaution, we recommend that you and your pets DO NOT ingest any river water at this time - especially near or in areas of large accumulations that look very blue-green in color.

(Continued from previous page)

more than 3.5 billion years old, in fact!

For a long time they were not recognized as bacteria, more often being referred to as blue-green algae. But all bacteria belong to a group of organisms known as prokaryotes, a Latin word meaning 'before nucleus.' Bacteria have no organized nucleus. Cyanobacteria are classified as bacteria, not algae, since their genetic material is not organized in a membrane-bound nucleus.

Cyanobacteria get their name from the bluish pigment phycocyanin, which they use to capture light for photosynthesis. However, unlike other bacteria, they also have chlorophyll a - the same photosynthetic pigment that plants use as an energy source. They are often referred to as 'blue-greens', since the first cyanobacteria identified were blueish-green in color. However, not all members are this color. Some are olive or dark green, and others are even purplish in color.



Arrows point to the boundary of the cyanobacteria bloom in Dolby Pond - higher concentrations in the lighter areas on the left. The main flow of the West Branch of Penobscot comes in from the right - providing one of the largest sources of nutrients (phosphorous) that is feeding the cyanobacteria.

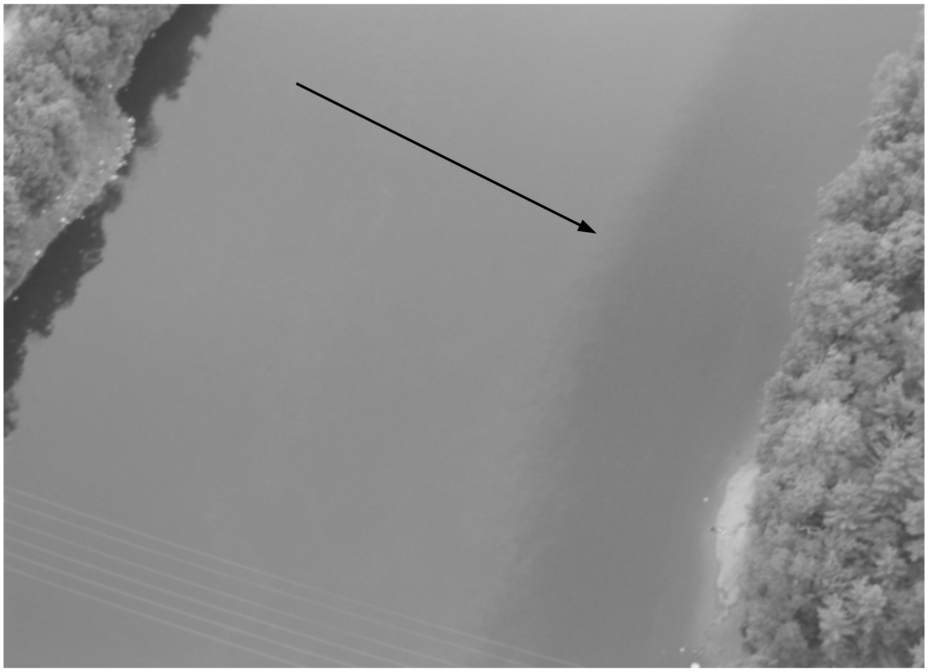
Cyanobacteria are one of very few groups of organisms that can convert inert atmospheric nitrogen into a more available organic form, such as nitrate or ammonia. This function gives them one more competitive advantage over other species when it comes to forming blooms.

If you have any questions about this bloom please call Angie Reed at 817-7360 or Dan Kusnizerz at 817-7361. We will keep you posted on our progress.

REMINDER

Mountain Brook, in the Mattamiscontis Lake area, is getting a new bridge NOW! Beginning Monday August 16 the bridge will closed for about a week and there will be signs posted.

James Francis



Arrow points to the boundary of the cyanobacteria bloom in the main stem of the Penobscot River - higher concentrations in the lighter areas on the left. The Mattawamkeag River comes in just upriver of here - where there is no apparent bloom - providing the contrast in the color of the water.

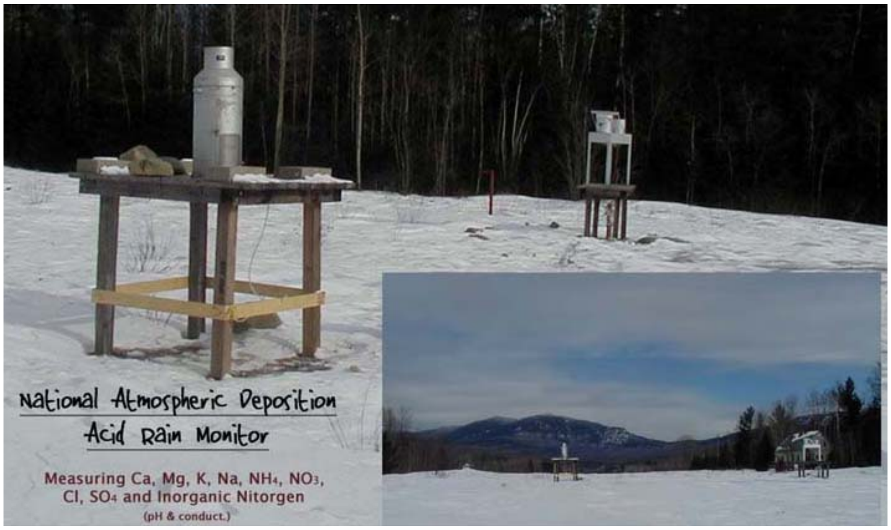
Monitoring The Air We Breathe ~ By Eric Nicolar

The Penobscot Nation Air Quality monitoring network includes an Interagency Monitoring of Protected Visual Environments (IMPROVE) monitor, a National Atmospheric Deposition Monitor (NADP) Acid Rain monitor, a MET One weather station, two Air-Metrics Portable Minivolä (MiniVol) Samplers, a Thermo-Environmental (TECO) 49C Ozone (O_3) and a TECO SO_2 monitor.

The IMPROVE monitor at Marsh Island apartments

The IMPROVE monitor, located on top of the Marsh Island Apartments in Old Town, has run successfully for three years. The monitor is at one of the highest accessible points in the area. The Air Manager completes weekly filter media changes, and periodic equipment maintenance, throughout the year. This IMPROVE protocol site runs three $PM_{2.5}$ and one PM_{10} modules. Along with PM mass though, the IMPROVE tracks visibility influencing "particulate" air tracers, such as nitrates and sulfates (SO_2). As you know NO_x and SO_x are criteria pollutants. One module takes some chloride measures. Organic and elemental carbons are measured as well, but for visibility purposes as well. Two modules extract Particle Induced X-Ray Emission (PIXE) XRF: X-Ray Fluorescence, including Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Br, Rb, Sr, Zr, Mo, Pb. Our site, #OLTO01, went through a successful audit by the folks at the Crocker Nuclear Lab / UC-Davis in July. Successful data capture was at 92%. OLTO01 was an "outstanding site," meaning 100% data collection, for three of the four quarters of the year. The Air Manager finalized a Tribal QAPP for the IMPROVE at the end of the year as well.

The NADP Acid Rain monitor in Carrabassett Valley has been fully operational for two years. This collects weekly precipitation samples and tests for hydrogen (acidity as pH), sulfate, nitrate, ammonium, chloride, and base cations (such as calcium, magnesium, potassium and sodium). The NADP covers an important monitoring gap for the state and national trends network. The Air Manager travels on average of twice a week to maintain monitor success and sample collection. All weekly samples have been successfully completed for the past 18 months with some schedule deviations due to Air Manager travel. We are planning to follow Ammonia and Sulfate trends from this monitor for our Alder Stream Trust lands. We also plan to acquire other NADP site data around other Penobscot lands and evaluate the impact of acid rain and its associated compounds on Penobscot natural resources. A long term goal is to install another NADP for the reservation islands. We have planned to add the Mercury Deposition component to the site this year.

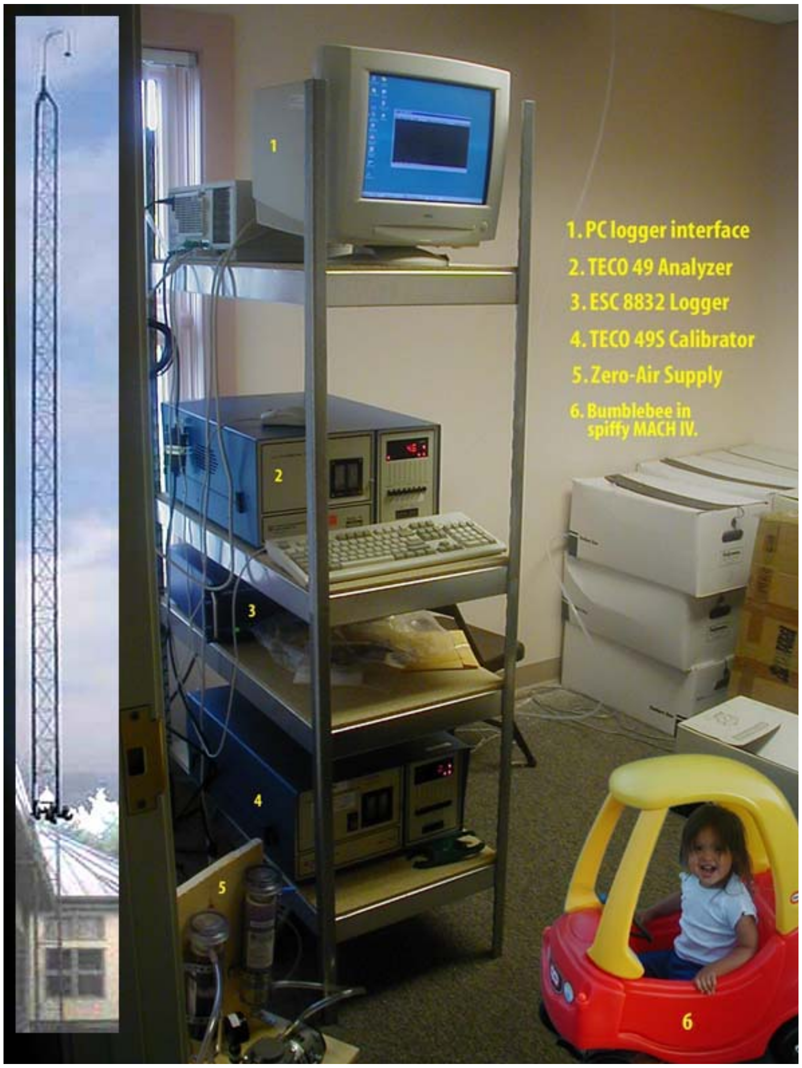

National Atmospheric Deposition
Acid Rain Monitor
Measuring Ca, Mg, K, Na, NH4, NO3, Cl, SO4 and Inorganic Nitorgen
(pH & conduct.)

Met 1 meteorological station
Measuring:
Wind speed & direction, relative humidity, barometric pressure, precipitation, & solar radiation.

The MET One weather station is located on top of the Marsh Island Apartments as well. Data was still being manually downloaded this past year. Plans are in the works to tap into the station through an existing external modem port at the site and eventually make this monitor real time with an analog line to our PAP Tribal Air website.

The Minivols were used again this year to identify PM_{10} problem areas on Penobscot lands. The focus of the PM_{10} saturation study was specifically on fugitive dust from tribal trust land roads. The program is working to identify local $PM_{2.5}$ sources through a similar study using a PM fine. Sampling with these portable monitors is done 2-3 times a week around all our trust lands. Filters are pre-weighed, post-weighed after sampling, and run through formula calculations to record *ug*/M^3 levels. Time management and constraints requires the AQM to run these monitors periodically and over parts of weekends. This data is important to evaluate and respond to the $PM_{2.5}$ attainment designations made by Region I EPA and will be incorporated into our comments due in November of this year.

We added a new TECO 49C & Calibrator O_3 monitor to the network in August 2003. The O_3 is located in the DNR building. This addition was a result of the program's concerns about rising O_3 numbers these past three O_3 seasons. The Air Manager submitted comments to Region's "attainment" recommendation stressing that recent trends showed a potential rising number of O_3 violations. It was stressed that the available data was insufficient to make a proper analysis and thus region came through with the TECO monitor. This past summer was mild, and contrary to recent patterns, but we're ready to collect necessary data for next year, and respond appropriately to O_3 related issues.



A TECO 43A Sulfur Dioxide monitor has just been added to our network. This will be co-located with the O_3 monitor, because it requires similar climate control conditions. We should have it up in running in the near future. If you have any questions please feel free to contact me at 817-7336 or cleanair@penobscotnation.org.

Photo: Martin Neptune

Pəskehtəkʷok

Joining of the Branches

Summer 2004 ~ Issue 3b

Penobscot Indian Nation
Department of Natural Resources

Phone Extensions

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Water Resources Trainees	7363

The bloom seems to be dying ... for now

For a variety of reasons that are still being monitored and discussed, the bloom of cyanobacteria seems to be dying off. It is still present in Dolby Pond but doesn't extend as far down river. Tests for one of the two toxins possibly present showed none detected, so we no longer think that the bacteria are an immediate threat. We are waiting to hear about the other toxin. We will continue to keep you posted on our progress, current understanding of the health of the river, and any potential impacts on people.

You may have seen the article in the Bangor Daily News on August 20th (www.bangornews.com/editorialnews/article.cfm?ID=428692) describing the status of the bloom and what our staff and those at the Department of Environmental Protection are working on. As the article discussed, it seems that the most probable source of nutrients (food) for this cyanobacteria bloom was coming from Katahdin Paper Company's mill in Millinocket. We have been told by DEP staff that the mill was discharging "way more than they ever had in the past." We are still waiting to hear specifics on this increased discharge and John Banks has been trying to get involved in the conversations happening between DEP and Katahdin Paper Company.

PIN Water Resources staff were responsible for collecting almost all of the early samples on this bloom, including an aerial survey that generated the first photos of the problem. We have also been working with both the DEP and the US Geological Survey (USGS - www.usgs.gov) in Maine to understand the conditions causing this bloom. Future plans include meeting with USGS to discuss how their staff and the connections they have with Bigelow Laboratory for Ocean Sciences (www.bigelow.org) can help us to get more and better data on any other blooms in the river.

Unfortunately, cyanobacteria blooms are not uncommon. They occur elsewhere in Maine and have become a serious problem every year in Maryland. If you have access to the web and want more information on blooms, the Maryland Department of Natural Resources has a great web page - www.dnr.state.md.us/bay/hab/index.html. And as always, if you have ANY questions please feel free to call our staff.

REMINDER

The bridge over Mattamiscontis Stream on Trust Land should be done soon! This work was necessary for getting to the Mountain Brook bridge ~ which we hope to have repaired by the middle of September. So, for now, the bridge will continue to be closed and signs will still be posted.

Monitoring The Air We Breathe ~ By Eric Nicolar

The Penobscot Nation Air Quality monitoring network includes an Interagency Monitoring of Protected Visual Environments (IMPROVE) monitor, a National Atmospheric Deposition Monitor (NADP) Acid Rain monitor, a MET One weather station, two Air-Metrics Portable Minivolä (MiniVol) Samplers, a Thermo-Environmental (TECO) 49C Ozone (O_3) and a TECO SO_2 monitor.

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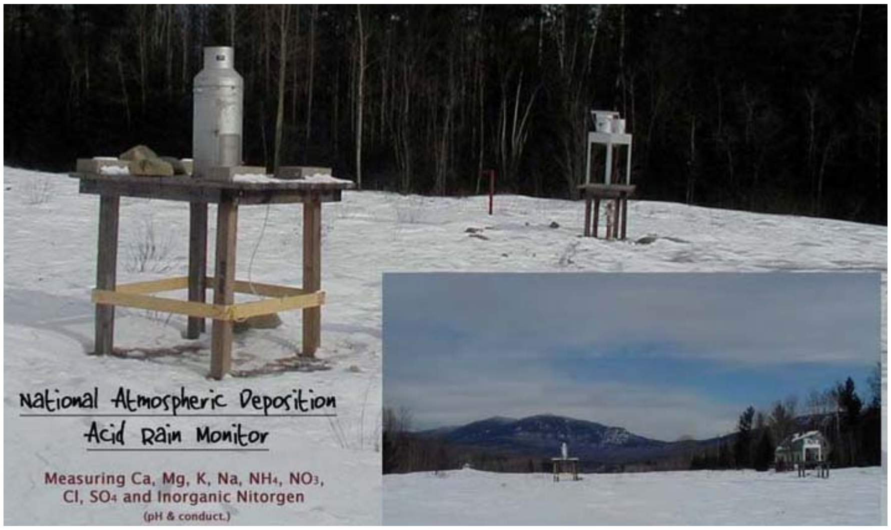
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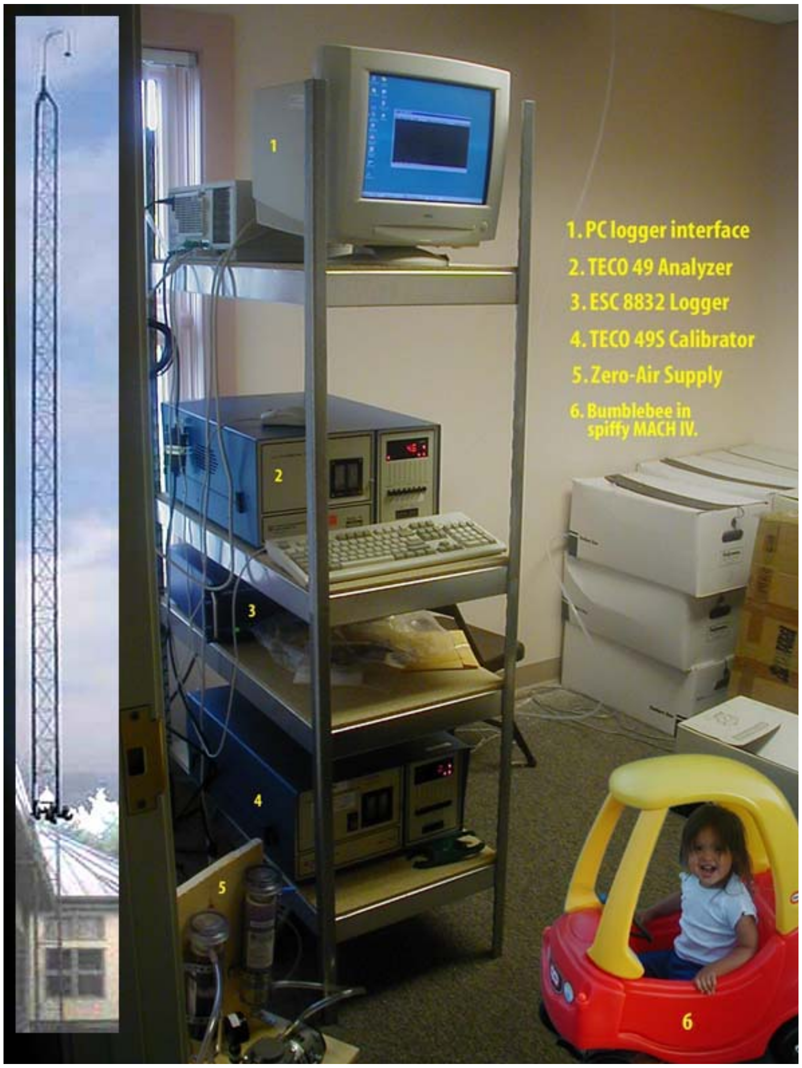

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Photo: Martin Neptune

Pəskehtəkʷok

Joining of the Branches

Fall 2004 ~ Issue 1

Penobscot Indian Nation
Department of Natural Resources

Phone Extensions	
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The Latest Word on … …the Pond

As many of you will remember, we sent out a survey this summer asking your thoughts on the future of the pond on the Island. We were pleased to get 33 responses and appreciate your comments.

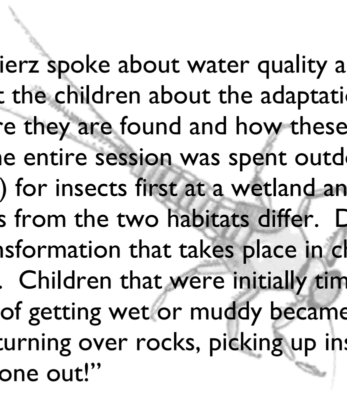
While DNR continues to look at options we wanted to share a summary of the feedback we have received thus far. Twenty-five (25) people wanted to restore the health of the pond, six (6) people would prefer to drain the pond and one (1) person suggested a combination of these two options - all for a variety of reasons. There were a few suggestions on how to improve the health of the pond as well as the implications of draining it.

Our next step is to discuss this with council. We will continue to keep you posted on our progress. Please feel free to continue to provide us with input on your thoughts on this matter.

Art: James Francis

A Day at Conservation Camp

The Piscataquis County Soil and Water Conservation District holds a Conservation Camp every year to make learning fun and give children ages seven to 14 an opportunity to explore the natural resources of the region.



On the first day of the camp our own Dan Kusnierz spoke about water quality and the kinds of critters that live in and near water. He taught the children about the adaptations that aquatic insects have for living in the habitat where they are found and how these critters can be used as indicators of water quality. Nearly the entire session was spent outdoors where children had an opportunity to dip (and get wet!) for insects first at a wetland and then in a flowing river to see firsthand how aquatic insects from the two habitats differ. Dan shares of his experience "It is a treasure to watch the transformation that takes place in children as they learn about the natural world around them. Children that were initially timid and concerned about "gross bugs" or the possibility of getting wet or muddy became little scientists excitedly charging through the water, turning over rocks, picking up insects in their bare hands and yelling "Cool. Come check this one out!"

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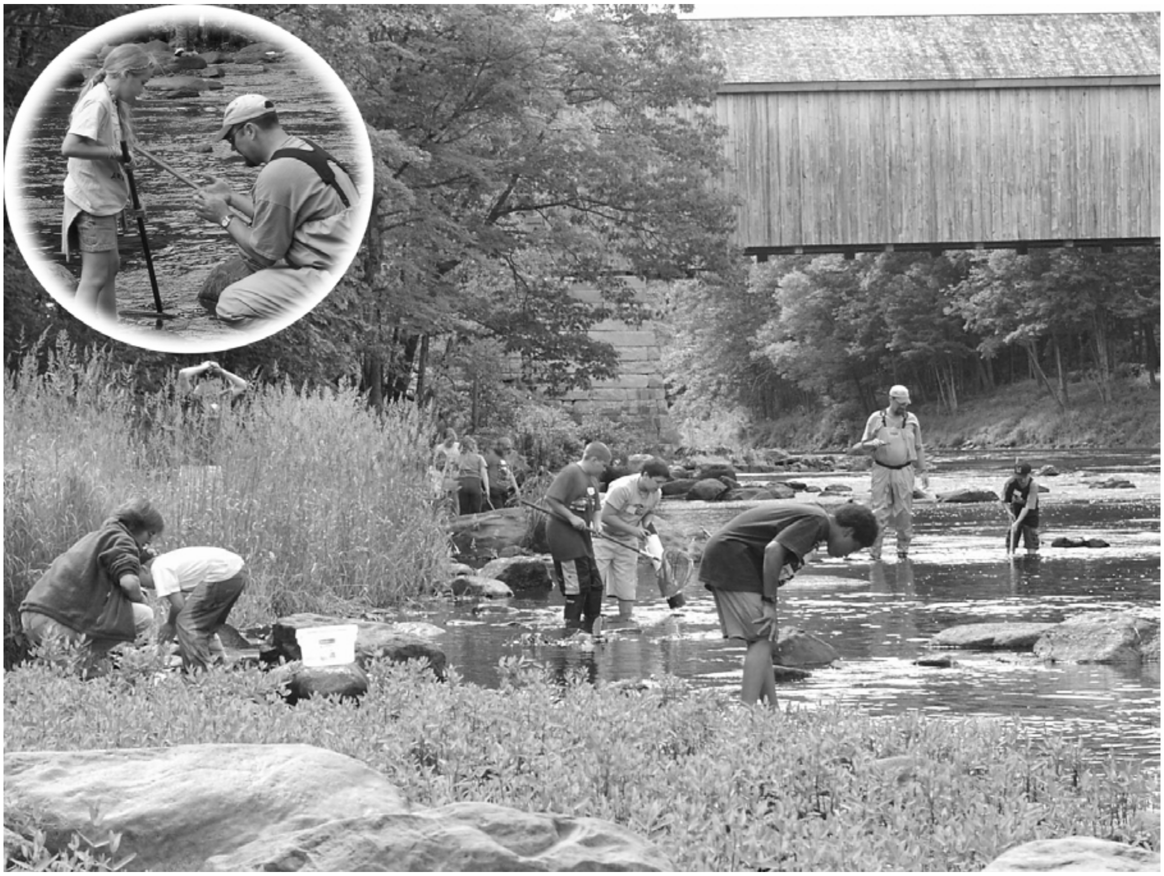
Other scientists also donated their time to the camp, including:

- Ron Olson, Soil Scientist with the Natural Resources Conservation Service (NRCS), taught the kids how to dig a soil pit in the forest.
- Entomologist Clay Kirby presented a slide show about insects and how to capture them and let the kids handle the various specimens he brought with him.
- Gordon Moore and Geneva Duncan-Frost of the Maine Forest Service, taught the kids how to measure trees to estimate their age and how to identify various species.

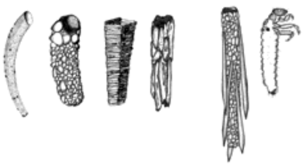


Dan Kusnierz out in the Piscataquis River collecting insects with the kids. Inset: Dan helping one of the students identify an insect.

- Doug Kane with the Department of Inland Fisheries and Wildlife taught the kids about wildlife and took them out to explore habitat.

The second week of camp featured farm tours. Participants visited a fallow deer and buffalo farm, watched horses at Isaac Royal Farm, helped to pick new crops at Stutzman's Farm, learned about cows, calves and milking at Gilrock Dairy Farm, and learned about raising game birds at the Estes Farm in Milo.

The district was able to offer the camp for free to so many children this year due to a wide variety of support. If you think your child might be interested in attending this 1-2 week long conservation day camp next summer, please contact Sheila Grant at Piscataquis County Soil and Water Conservation District at 564-2321 for more information.



CONGRATULATIONS!

DNR is pleased to have Bill Thompson joining our staff on a permanent basis. Bill will be working with Eric as the new Air Quality Technician.

Although the Water Resources staff will miss having a more frequent connection to Bill, he will be available to help us in the field when necessary. Bill has worked hard to develop his skills in natural resource assessment and will be an asset to the department in whatever capacity he is serving.

Art: James Francis

Joining of the Branches in Houlton, Maine

This year's northeast regional conference of the Native American Fish & Wildlife Society (NAFWS - www.nafws.org) was sponsored by the Houlton Band of Maliseet Indians. The NAFWS is a non-profit membership organization that exists for the protection, conservation and enhancement of Native American fish & wildlife resources. The Society's purposes are charitable, educational, scientific and cultural. PIN DNR staff were well-represented by our Director, three Wardens, Fisheries Biologist and two Water Resources staff. John Banks helped to form the northeast region of the NAFWS in the 1980s and Tim Gould is the Regional Director. Topics of presentations and workshops included:

Josh with the rifle he won.

- US Fish and Wildlife Service law enforcement firearm shoot
- Penobscot River Restoration Project (given, in part, by John Banks and Clem Fay),
- Sediment, bacterial source tracking, and fish habitat studies done in the Meduxnekeag River watershed,
- Fish habitat restoration in western Maine,
- American Chestnut restoration in the northeast,
- Passamaquoddy carnivore population survey,
- Partners for amphibian and reptile conservation
- Wampanoag's lyme disease control program
- Chronic wasting disease
- Narragansett's west nile virus monitoring program
- Human conflicts with animals: beaver, bear and cormorants
- Response options for oil spills in Indian waters

Jim learning to samples for chronic wasting disease.

PIN's Josh Loring won Top Gun for the region - which means he was the best shot with a hand gun, scoring an average of approximately 590 out of 600 possible points. Josh's skill has made him a perfect candidate for the training he is receiving this week. Josh is participating in a Methods of Instruction class given by the Maine Criminal Justice Academy. This class is the first step in becoming the first ever Certified Firearms Instructor in the Department of Natural Resources. And because of the great work being done by Tim and his staff, they received a grant for $415,000 to cover an additional two years of salary and equipment for two Wardens.

DNR is working with the Animal and Plant Health Inspection Service (APHIS) to obtain funds to conduct a survey on the presence of Chronic Wasting Disease (CWD) in deer and moose populations on Trust Lands. CWD is a fatal, neurological disease of primarily farmed and wild deer and elk. But as we learned at this conference, it has now been found in moose. Clinical signs in affected animals include loss of body condition, behavioral changes, excessive salivation, increased drinking and urination, depression, and eventual death. CWD is always fatal. There is no known treatment, vaccine, or live animal test for CWD. Currently, CWD is diagnosed by examining brain and lymphoid tissue (lymph nodes and tonsils) from a dead animal. More information on CWD can be found at the APHIS website: http://www.aphis.usda.gov/vs/nahps/cwd/. We will continue to keep you posted on the progress of this survey and all results we obtain.

REMINDER:

There have been a few minor changes in the hunting regulations. See Cookie in the DNR office for a copy of the 2004 PIN rules titled Chapter VII: Inland Fish and Game.

Art: James Francis

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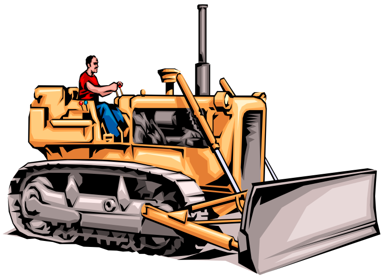

The bridges in Mattamiscontis are done!

Currently, Birch Stream Road in Alton is being repaired.

Photo: Martin Neptune

Pəskehtəkʷok
Joining of the Branches

Fall 2004 ~ Issue 2

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Department of Natural Resources

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Children Protecting the Environment

This past summer, six Penobscot youth had the amazing opportunity to meet children from around the world who were interested in protecting the environment. The 2004 Tunza International Children's Conference on the Environment was hosted in New London, CT between July 19-23 2004. The conference was organized by the International Coalition for Children & the Environment, with initial funding from the Mashantucket Pequot Tribal Nation. James Sappier was responsible for getting financial support from EPA for Native children to attend.

Maya Attean, Danielle Altvater, Gary Fearon, Dakota Meserve, Leigh Neptune and Gabe Sappier joined more than 450 delegates from 50 countries. As you can see from the pictures included in this article, they all enjoyed their trip! A special thanks goes out to Bonnie Sappier for helping to chaperone this event. The kids could not have gone without Bonnie and Ruth Jewell taking time out of their lives to join them.

While there, all of the attendees came up with a list of commitments and challenges, including:

- ✓ To respect, support, share and celebrate indigenous peoples’ cultures and knowledge.
- ✓ To not harm any plants or animals, especially endangered species.
- ✓ To establish or help at a local shelter for animals, either for domestic animals or for endangered species if available.
- ✓ To educate ourselves and others about the value of water and the problem of pollution.

Please take the time to check out www.icc04.org/home.html for the complete list. There you will also find a list of actions that the children pledged to take in support of those challenges and commitments, including:

- ➢ Treating indigenous peoples fairly and respecting their rights, including them in decision making and giving back artifacts that were taken from them.
- ➢ Treating water as a global resource and sharing the resource.

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- Educating the public, using the media, school curricula and any other available methods, reminding them to use water, energy and other resources wisely.

When asked about their favorite experience at the conference, the six attendees had some similar and unique responses. Maya and Danielle really enjoyed meeting kids from other countries, especially a girl named Lisa from Paraguay. Danielle also had fun at the Pequot Museum because she got to learn about their history and see the very realistic village. Leigh's favorite activity was participating in the "action circles" where they learned about what they could do to help protect the environment. She also liked using a camera to take pictures of trees that weren't healthy and learning that one action she can take is to plant more trees to make up for the impacts of pollution. Gabe most enjoyed the Mystic Seaport and the old whaling ship.

As a result of the conference, Ruth and Bonnie are helping the original six attendees form an environment group on the Island. Everyone wanted to get more people involved and go to the 2005 conference in Japan. So far, their strategy has been to have every person bring one new person to a meeting, which has increased their size by five. New members include Rochelle Carlson, Tori Hildreth, Megan Loring, Jasmine Thompson and Marcus Sapiel. Everyone comes to the group with a different focus and things that they want to do. Jasmine and Leigh are interested in water and the river. Maya wants to do something related to the air. Marcus and Tori are concerned about landfills. Danielle finds wildlife most interesting. Gabe wants to protect harbor seals and their habitat. Gary is going to help with recycling efforts.

The kids have a whole bunch of great ideas about what they can do as individuals to protect the environment including walking instead of driving, picking up garbage, not putting bad things in the water and leaving more trees around. With this kind of a focus they are working on developing an appropriate name for the group - choosing from thoughts they have had so far including: Children's Penobscot Indian Nation Environmental Doctors, Penobscot Indian Nation Children of the Earth, Penobscot Indian Nation Reservation Environmental Group, Wabanaki Children's Environmental Group, and Penobscot Nation Mountain Walkers Children's Group.

And in order to help raise funds to pay for a trip to next years conference in Japan they are thinking about a variety of fundraising efforts including delivering the community flyer, holding a raffle, yard sales, a cake walk, bottle drives, car washes, a 50/50 table at Bingo and selling candy and candles. So look for the many ways you can support these young people caring for the environment that supports all of us. For more information please contact either Ruth Jewell or Bonnie Sappier.

Art: James Eric Francis

Green Cleaning Tip

Unclogging drains without the use of harsh chemicals can be as easy as this:

1/2 cup of baking soda
1/2 cup of vinegar or lemon juice

Pour the baking soda into the drain first and then add the vinegar. Although it makes a lot of noise, the chemical interaction will break up the clog. Let this mixture sit for 15 minutes before rinsing with boiling water.

This tip comes from "Clean & Green" by Annie Berthould-Bond

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Winter 2004 ~ Issue 1

Penobscot Indian Nation
Department of Natural Resources

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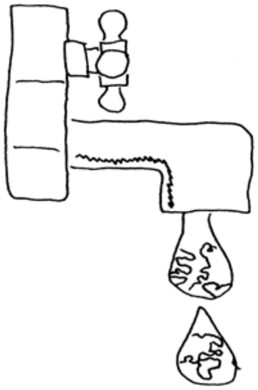
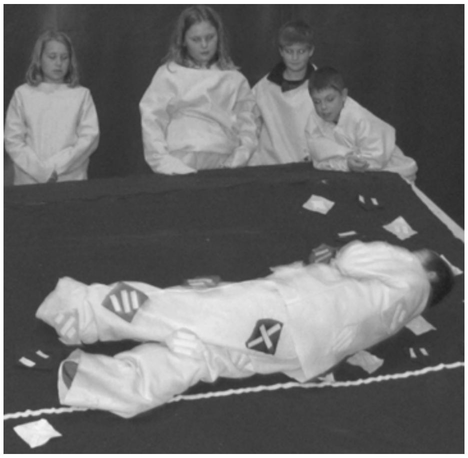
Penobscot Nation, Children and Water - A great combo!



The Penobscot Nation hosted two sessions at the 2004 Northern Maine Children's Water Festival on October 12. And Mr. T's class from Indian Island School spent the whole day at the Festival learning about different aspects of water in fun and interesting ways! This annual event happens in the fall at the University of Maine (UM) and brings schools from as far away as Indian Township, Machiasport, Skowhegan and Hodgdon. It is organized by Maine Department of Environmental Protection, George J. Mitchell Center, Americorps volunteers, UM Cooperative Extension, and Maine Department of Education and funded by a variety of sponsors.



PIN Water Resources staff, Angie Reed and Jan Paul, brought our pollution prevention ramp and helped three classes learn about watersheds and pollution prevention. The kids got to dress like a water drop to experience how pollution is collected as it runs over the land. And then they got to see how trees, shrubs and leaves slow water down and let it soak into the ground - helping to clean it before entering the river. As has happened at each of these workshops, the kids had a lot of fun!

Every child at the Festival also got to hear from PIN's Cultural and Historic Preservation Office and youth from the community. James Eric Francis talked about Penobscot culture and told a few legends that were about water. Gabe Paul read a story in Penobscot that James translated into English. And Maulian Dana shared a song used to keep cadence

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when paddling a canoe. It was a great educational opportunity for non-Native youth and a time for both the Indian Island and Indian Township children to see their Wabanaki culture represented and respected.

Other topics to which the kids were introduced included: the water cycle, energy and pollution, stormwater, tidepools, stream insects, lakes, wetlands, the interaction of trees and water, forestry practices, agriculture, turtles, puffins, mapping, drinking water, alien plants and how much water each of uses in one day. In addition to many interactive workshops the kids tested their knowledge and timing in quiz shows.

Art: James Eric Francis

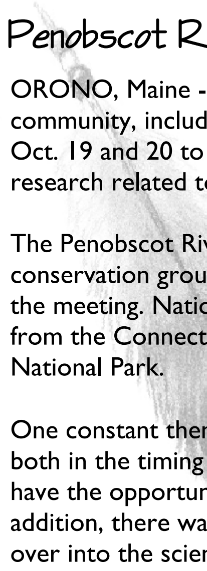
Green Cleaning Tip

Say goodbye to mold and mildew using tea tree oil in your laundry or by spraying it on surfaces. *Melaleuca alternifolia*, or Australian tea tree as it is more commonly known, is a native Australian plant with many remarkable properties. When crushed and distilled, the leaves of this plant yield a 100% natural oil which is an antiseptic, a fungicide, and a mild solvent. You can buy this essential oil at most health food stores, like the Natural Living Center on Stillwater Ave in Bangor.

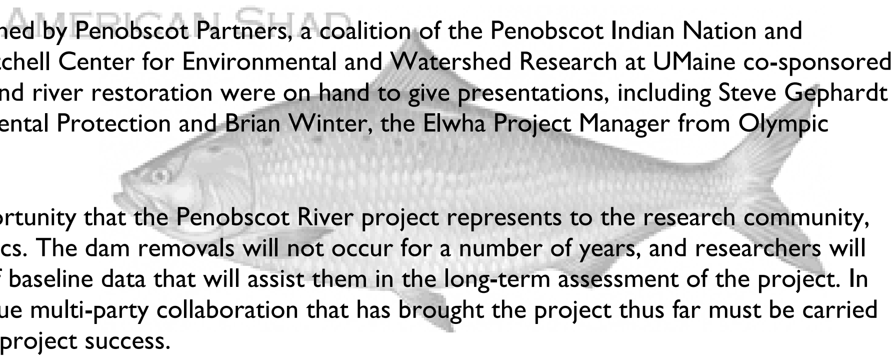
- **Add 1/2 teaspoon tea tree oil to your laundry for towels and other fabric prone to getting moldy.**
- **Combine 2 teaspoons tea tree oil and 2 cups of water in a spray bottle. Shake to blend, and spray on problem areas. Do not rinse. This can be stored in the bottle for an indefinite amount of time.**

These tips comes from www.care2.com/channels/lifestyle/home

Penobscot River Research Opportunities Abound: Science Forum Serves as Stepping Off Point



ORONO, Maine -- (Mostly taken directly from www.penobscotriver.org) Approximately one hundred members of the scientific community, including PIN staff Clem Fay, Dan Kusnierz, and Angie Reed, met for two days at the University of Maine in Orono Oct. 19 and 20 to review scientific research on the Penobscot River watershed and discuss needs and opportunities for new research related to the dam removals proposed as part of the Penobscot River Restoration Project.



The Penobscot River Science Forum was convened by Penobscot Partners, a coalition of the Penobscot Indian Nation and conservation groups. The Senator George J. Mitchell Center for Environmental and Watershed Research at UMaine co-sponsored the meeting. National experts in dam removal and river restoration were on hand to give presentations, including Steve Gephardt from the Connecticut Department of Environmental Protection and Brian Winter, the Elwha Project Manager from Olympic National Park.

One constant theme of the forum was the opportunity that the Penobscot River project represents to the research community, both in the timing and diversity of potential topics. The dam removals will not occur for a number of years, and researchers will have the opportunity to jump-start collection of baseline data that will assist them in the long-term assessment of the project. In addition, there was a strong sense that the unique multi-party collaboration that has brought the project thus far must be carried over into the scientific community to maximize project success.

Photo: Martin Neptune

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Joining of the Branches

Winter 2004 ~ Issue 2

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The Penobscot River Restoration Project:

Building Community Assets Along the Penobscot River

A Series of Workshops & Community Discussions

A comprehensive economic planning process led by Eastern Maine Development Corporation and funded through a Community Development Block Grant and the National Ocean and Atmospheric Administration is underway to gather community insight and plan for development once the Penobscot River Restoration Project comes to fruition.

Community members are encouraged to attend a series of workshops and community discussions on the culture and history, natural setting, and built environment and business opportunities on the river. An economic visioning session will follow these workshops to prioritize market opportunities that could range from river recreation programs or tourism businesses to infrastructure improvements.

The first workshop, **"Culture and History of the River" will be held on Wednesday, January 26, from 6:30 to 8:30 pm at the Penobscot Nation Community Building Gymnasium on Indian Island**. Panelists from Maine Historic Preservation, Maine Forest and Logging Museum, Penobscot Nation and the University of Maine will speak for the first hour. Attendees will then be able to share their knowledge of the river and ask questions of the panelists. This format will be used for all three workshops.

"The Natural Setting of the River" workshop will be held Tuesday, February 1, from 6:30 to 8:30 pm at the Eddington Salmon Club. Panelists include representatives from the US Fish and Wildlife, the Forest Society of Maine, Penobscot Nation and other outdoor naturalists.

"The Built Environment and Business Opportunities on the River" workshop will be held Wednesday, February 9, from 6:30 to 8:30 pm at the Old Town High School Cafetorium. Panelists are Steve Levesque of SHL Enterprises and former state commissioner of the Department of Economic and Community Development; Donna Fichtner, Executive Director of the Bangor Convention and Visitors Bureau; a landscape architect and other small business owners.

These workshops lead up to an Economic Visioning Session that any and all interested parties are encouraged to attend. The Visioning will be held Saturday March 5th at the Veazie Community School cafeteria. Interested parties do not have to attend the workshops to attend the visioning session, although summaries of each workshop will be posted at the EMDC website: www.emdc.org.

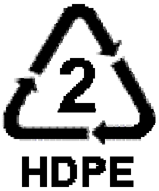
For more information on the workshops please contact Michael Bush or Laura Hoovler at EMDC at 942-6389 or lmitchell@emdc.org. Visit www.penobscotriver.org to learn more about the Penobscot River Restoration Project.

Talking Trash

What you can do with your recyclables … for now

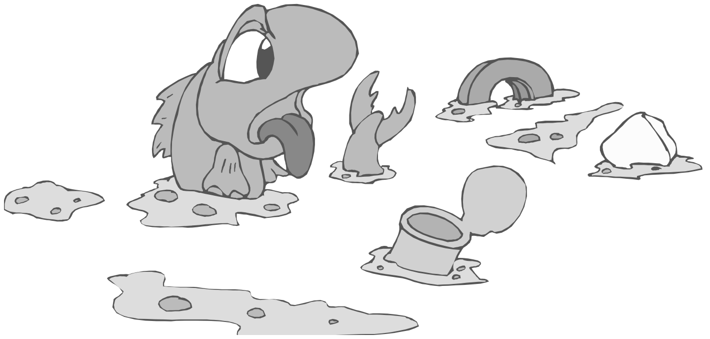
For those of you who are interested in reducing the amount of garbage you contribute to landfills, you can begin recycling on your own! Even though there isn't a recycling pick-up service on the Island yet you can still bring your materials to the Old Town Transfer Station on Gilman Falls Avenue. For $5 you can buy a sticker that allows you to bring recyclables and certain types of waste there on Saturdays. Hours of operation are from 7:30am to 5:30pm. Visit the Old Town Public Works web site at www.old-town.me.us/publicworks/default.htm or call them at 827-3974 for more information. Below is a list of what types of waste and recyclables you can bring:

Plastic
#2 HDPE (High-density Polyethylene) containers - includes milk and water jugs, shampoo and laundry detergent bottles - look on the bottom of the container for a symbol like the one to the right. Please rinse them and take the caps off. **NO** oil or antifreeze containers.



Paper
- Newspapers and all inserts, all junk mail
- Telephones books and magazines *(loose in brown paper bags)*
- Brown paper bags *(folded inside another brown paper bag)*
- Corrugated cardboard *(flattened)*
- Mixed Paper

Boxboard
(flattened and placed in brown paper bags)
- Gift boxes
- Cereal and other food boxes with paper or plastic inserts removed
- Beer carrier boxes
- Shoe boxes
- Pizza boxes
- Egg cartons
- Christmas paper
- Glossy cardboard



Metal
- All cans
- Metal lids
- Aluminum-foil wrap
- TV dinner trays
- Pie plates, scrap aluminum

But **NO**
Food contaminated metals OR
Cans containing poisons, fuel, insecticides, paint thinner, etc.

Paint cans
Your paint cans must be empty. You may leave a very thin skin of paint on the bottom and sides of the can but no more than that. The skin of paint must be dry. Remember to recycle the steel lid on the can as well, but to leave it off the can.

Aerosol cans
Your aerosol cans must be empty. The spray nozzles do not need to be removed for recycling. If the can has a plastic lid, it must be removed.

Glass bottles and jars
- Clear
- Brown
- Green

Please rinse all jars, remove metal covers. It is OK to leave the labels on glass containers.

DO **NOT** BRING
Food contaminated glass
Light bulbs
Drinking glasses
Window glass
Broken glass
Ceramics
Mirror glass

Waste Accepted
- Brush, stumps and boards.
- Demolition debris including earth, plaster, mortar, bricks, building blocks, roofing material, sheetrock, plastics and any similar materials.
- White goods, including discarded washers, dryers, refrigerators and stoves.
- Auto body parts and other heavy metal materials.
- Tires
- Used oil

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Waste NOT Accepted

- Septage and sludges
- Industrial wastes
- Hazardous wastes
- Five gallon or larger drums or containers, unless one end is open and the drums or containers are clean.
- Any wastes found to be generated outside of the municipal boundaries or duly contracted municipalities
- Motor vehicles

Some items that require an additional $5.00:
All white goods (including microwave ovens)

- Metal bathtubs
- Metal desks
- Metal cabinets
- Metal water tanks
- Snowmobiles
- 55 gal. containers
- Containers larger than 55 gal. must be cut up and will require one ticket.
- Metal items 2 ft. X 4 ft. and larger must have tickets

Homemade Furniture Polish

Using **1/4 cup vinegar plus a few drops of oil** -- makes for a much better wood cleaner and polish. The vinegar pulls the dirt out of the wood, and the few drops of oil lubricates the wood so that it doesn't dry out.

The best oils to use are those that have the longest shelf life. Olive oil works well. The best choice of all is the liquid wax jojoba, because it never goes ranced. It is found in most health food stores. Boiled linseed oils found in hardware stores have synthetic drying chemicals in them and shouldn't be used.

You can substitute lemon juice for the vinegar. Organic apple cider vinegar is the best choice of vinegar, although not for general cleaning because of the possibility of staining. If you are cleaning something that could possibly stain, use white distilled vinegar.

Lemon Oil Duster

Traditionally, lemon oil has been used for furniture because it is so lubricating and antiseptic.
10 drops lemon oil
2 tablespoons lemon juice
A few drops olive oil or jojoba

Dip a soft recycled cloth, such as one of flannel, in the lemon oil mixture, and wipe furniture.

These tips comes from www.care2.com/channels/lifestyle/home

Art: James Eric Francis

Photo: Martin Neptune

Pəskehtəkʷok
Joining of the Branches

Winter 2004 ~ Issue 3

Penobscot Indian Nation
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~ ALERT ~ CORRECTION ~

We apologize for giving you incorrect information about the Old Town recycling program in the last newsletter. But here we are to correct that mistake.

Indian Island residents are able to bring recyclables to the Old Town transfer station **WITHOUT** a permit, for **FREE**, at any of the times that they are open.

The hours of operation are from 7:30am - 5:30pm on

- Tuesday
- Wednesday
- Friday
- Saturday

STAY TUNED
Old Town transfer station operation and hours will be changing soon.
We will keep you posted!

Putting on the Winter Whites: Weasels

By Angie Reed

A few weeks ago, as I was returning from my lunch-break walk, I had the privilege of seeing one of these little guys run down the cemetery road toward Nick Dow's yard. He had seen my dog and I and decided that going the other way would be much safer. It is only the second time I have actually seen one of these guys - and I am not sure whether he or she was a short- or long-tailed version. It was a great way to wind down my walk so I thought I would find some information to share with those of you who know as little about them as I do.

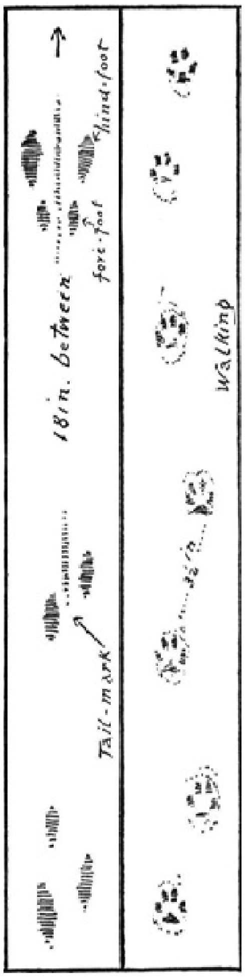
The Latin species name, Mustela, means "one who carries off mice," and all weasels are accomplished mousers. However, to reap the benefits of their small, dynamic world, the weasels can't afford to be picky eaters. The bill-of-fare includes chipmunks, ground squirrels, insects, small birds, frogs and snakes. Shrews form an important part of their winter diet. Though they occasionally eat fish, weasels are poor swimmers, paddling clumsily with their backs arched out of water. Weasels have an earned reputation as fierce, efficient predators that will attack animals several times their own size. A four-ounce weasel can kill a four-pound rabbit.

The pelts of all three weasels are brownish and are replaced by a winter white coat that begins to appear by the first of November. The long-tail and short-tail sport a black tip on their tails; an attribute which may confound the striking accuracy of avian predators.

Weasels are easiest to see in winter when leaf cover is gone and a thin layer of tracking snow will show their whereabouts in the neighborhood. Weasels leave staggered pairs of little footprints placed in a bounding gait fashion. The front feet come down and, as the front feet leave the ground, the hind feet come in immediately behind. Look for sudden right-angle turns in the tracks that often disappear beneath the snow and reappear at a considerable distance.

Weasels sexually mature before their first birthday. A typical litter of six or seven young is born each year and is cared for by both parents. Weasels reaching five to six years are regarded as fully mature. Individuals as old as 10 are considered ancient.

Most of this information was taken directly from **www.wnrmag.com/stories/1998/feb98/weasel.htm#find**. Check out this and other web sites for more information if you are curious. Happy winter!



Art: James Eric Francis

Antibacterial Spray

Many essential oils, such as the oils of lavender and thyme, are more antiseptic than phenol, the industry standard. Research is also showing that antibacterial plant oils may not cause drug resistance as could be the case with common chemical disinfectants. The essential oil-based spray, below, leaves a lovely, clean scent. It is a good choice, for example, to use for misting your cutting board after use.

Simple Solution: Lightly Lavender Antibacterial Spray

* 1 cup water
* 20 drops pure essential oil of lavender

Pour the water into a spray bottle. Add the lavender essential oil and shake to blend. Spray on the surface and let set for at least 15 minutes, or don't rinse at all.

Makes: 1 cup spray
Shelf Life: Indefinite

These tips come from www.care2.com/channels/lifestyle/home

The Sea Lamprey: A Biological and Ecological Profile

Sea lamprey (Scientific Name: *Petromyzon marinus*) is one of Maine's most unique, and most misunderstood, native fish species. Its elongated body shape causes many people to think it is related to the American eel (*Anguilla rostrata*, featured in the Summer 2004 Issue 2 of this newsletter). Although both are thought to be, in terms of evolutionary origin, amongst the most primitive fish species that still exist today, these species are not really closely related. Part of the reason humans misunderstand this ecologically important fish is because they are parasitic during a portion of their life. If this species is ever to get the recognition it deserves it is necessary to understand: 1) the "damage" done by parasitism on other fish's lives is both natural and necessary, and 2) the ecological benefits they provide to other native species that are unrelated to their parasitic life stage

Maturing and adult stage lampreys in seawater do indeed "damage" or harm host fish, including Atlantic salmon, by their removal of fluids from the host body. Several lampreys may attach to the same fish and thus increase this parasitic burden. However, death of host fish due to lamprey parasitism is rare, and in most cases, they drop off the host after several months of feeding and then either find another host or begin their migration back to freshwater. Once adult sea lampreys reach freshwater, they no longer feed. In addition, the "transformed" juveniles mentioned to the right do not feed during their out-migration back to the ocean, although they may attach to a fish that is moving downstream simply for a temporary "free ride".

It is important to understand that this parasitic life style of adult sea lampreys is something that has co-evolved in balance with the other native fish species in its native range for thousands, if not millions, of years. And, as long as humans do not overly upset this balance (or introduce them into non-native habitats), the sea lamprey is in fact critical toward processes of natural selection and evolution of the other native fish species it parasitizes. Problems develop when sea lampreys are introduced, BY HUMANS, into non-native habitats, such as the Great Lakes.

SEA LAMPREY LIFE HISTORY

The sea lamprey has a long and complex life history. Juvenile lampreys are born in riffle sections of streams and rivers and live burrowed in an area of softer river bottom for 4 to 8 years, filtering algae and plankton from the water column. Larvae gradually "transform" into a parasitic stage over a period of several months, and then migrate to the ocean. In the ocean, they spend between 18 and 24 months maturing to adulthood, during which they are parasitic on the blood and other body fluids of host fish. They have rasp-like teeth around their "oral disc", or mouth, which allows them to burrow through tough skin or scales and attach directly to the soft tissue of the host fish.

After maturation at 2-3 feet in length, adults migrate back to their rivers of origin in the spring. While they possess only a modest swimming ability, they are able to surmount swift currents, shallow depths, and even some dams, by "winching" themselves upstream with their suction type mouth. When they reach the headwaters of their home river in early summer, they collect small stones with their mouth and pile them in a shallow, high current riffle area, and then lay their eggs amongst the stones. Then, they all die within a few hours, usually right near the spawning site.

Lampreys, along with other native migratory species such as shad and alewives, **benefit** ecosystems by cycling nutrients from the ocean to the river and back over the course of their life. They are attractive prey to a variety of ocean and river predators, including eagles, ospreys, herons, and gulls. Their early-summer nest building activities loosen compacted gravel in the exact same areas where adult Atlantic salmon and native brook trout will seek to build their gravel nests (or redds) later in the fall. When they die on the spawning grounds, their flesh is consumed by scavengers or decomposed by bacteria. The nutrients contained in their flesh, which originate from the ocean, enhance the growth and abundance of the organisms that live and feed there including macroinvertebrates that are an extremely important food source for juvenile salmon. Finally, their nest sites are often used by other native species as spawning beds, especially certain native minnow species like blacknose dace.

Beyond these ecological roles, lampreys possess several unique features that make them valuable toward certain human biological and medical research areas, such as neurological and spinal cord regeneration. They are also a prized food item in some regions of Europe.

All in all, it seems that sea lamprey should be highly esteemed and honored, rather than being maligned or ignored as most uninformed humans do today.

For more information on sea lampreys, please visit the website home.gwi.net/~fks/ksalmon.html and look for relevant links. You could also contact Clem Fay, PIN's Fisheries Manager and author of this article, at 207-827-7776, ext 7362, or email at pinfish@penobscotnation.org.